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ABSTRACT

This booklet is designed to assist those responsible for student selection in making decisions regarding student admission to secondary vocational-technical programs. Following an introductory chapter, chapter 2 describes a student selection committee's composition and responsibilities. Chapter 3 synthesizes selection criteria, as identified by review of related research and survey of vocational and feeder schools nationwide and in West Virginia. Chapter 4 presents seven to ten selection criteria identified as most closely related to predictions of success in each of fifty major West Virginia vocational programs. Chapter 5 is a how-to chapter on developing a Student Selection Guide and using the information for student screening and selection. A method for assuring compliance with nondiscrimination guidelines in student selection is presented in chapter 6. The largest section, chapter 7, contains profile information of major categories of occupations most closely related to the fifty West Virginia vocational programs with highest enrollment, each of which is identified by United States Office of Education code and title. These are designed for use as work sheets by counselors and selection committee members who can add information on state and local employment needs and relevant work factors to those suggested. (Additional selection criteria and summary reviews of aptitude tests are appended.) (YLB)

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ED189307

STUDENT SELECTION FOR VOCATIONAL EDUCATION

for

THE WEST VIRGINIA BOARD OF EDUCATION
DEPARTMENT OF EDUCATION
BUREAU OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
CHARLESTON, WEST VIRGINIA

by

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RESEARCH REPORT

The research report herein was performed pursuant to an agreement made by and between the State of West Virginia, by the Commissioner of Finance and Administration on behalf of the Board of Education, and Associated Educational Consultants, Inc., Pittsburgh, Pennsylvania. The contractors undertaking this project were encouraged to express their professional judgment freely in the conduct of the project. The points of view and opinions stated herein do not necessarily represent the position or policy of the Board of Education of the State of West Virginia or of the Bureau of Vocational, Technical and Adult Education.

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CHAPTER 1

INTRODUCTION

This booklet is one of four developed for the project Development of Strategies for Improving Student Recruitment and Selection in Vocational Education, the other three being Research Report, Student Recruitment for Vocational Education and Mountain State Vocational-Technical School: A Model for Recruitment, Selection, Counseling, Placement.

This fourth booklet, Student Selection for Vocational Education, was developed to assist those responsible for the selection of students for vocational education in making those difficult decisions about who shall be admitted to secondary vocational-technical programs of their choice. This is a sometimes difficult and painful decision, but it must be made in order to match the number of vocational students with the available instructional space and equipment.

Recent Federal guidelines concerning nondiscriminatory access to vocational education require that schools be able to demonstrate that, through their selection procedures, there are no adverse effects on various protected groups ("Guidelines for Eliminating Discrimination and Denial of Services on the Basis of Race, Color, National Origin, Sex, and Handicap," Federal Register, Vol. 44, No. 56, March 21, 1979).

Although the selection procedures herein have been identified by a review of the applicable literature and from a nationwide survey, it is necessary that they be validated to assure that they have demonstrated relationships to performance in the particular programs. In the application of the validation criteria, care must be taken that members of the various protected groups (race, color, national origin, sex and handicap) are not excluded.

From its research efforts, AEC derived a variety of selection measures which have been found to be related to performance in vocational programs. While the tests used to measure certain of the selection criteria are felt to be relatively unbiased, it is important that the tested criteria as well as criteria other than testing be validated in State and local settings to provide evidence that they have no adverse impact among protected groups before they can be adopted for use. It must be noted that the information reported in this booklet is based on practices current prior to the issuance of the aforementioned Federal guidelines, although an attempt has been made to develop procedures which are both legal and effective.

Chapter 2 of this booklet describes the composition and responsibilities of a Student Selection Committee as it applies to any given vocational center.

Chapter 3 is a synthesis of selection criteria, as found in the review of related research and from a survey of vocational and feeder schools across the nation and in West Virginia.

Those seven to ten selection criteria identified as most closely related to predictions of success in each of 50 major vocational programs offered in West Virginia schools are presented in Chapter 4. These were identified from the research studies and survey and verified with Vocational Program Supervisors of the West Virginia Bureau of Vocational, Technical and Adult Education. It is these criteria that must be validated for use in any particular school.

Chapter 5 is a "how to" chapter: how to develop a Student Selection Guide and how to use the information from it to screen and select students for vocational-technical programs. And Chapter 6 describes a method for assuring compliance with nondiscrimination guidelines in the selection of students.

Another major segment of this booklet, Chapter 7, addresses each of the 50 vocational programs with highest enrollment in West Virginia, by USOE code and title. Major categories of occupations most closely related to these programs are identified by DOT codes and occupational titles, listing those representing jobs in which West Virginia's vocational-technical education graduates are likely to find employment as well as selected work factors which are most likely to be involved in these jobs. These 50 segments are designed to be used as work sheets by counselors and members of the Selection Committee, who can also add relevant work factors and information on State and local employment needs.

A number of appendices are included. Appendices A through D present a brief summary of selection criteria both related and not related to success in vocational programs and the bibliography of research studies from which they were extracted. Appendices E through H define aptitudes measured by the General Aptitude Test Battery (GATB) and the Differential Aptitude Tests (DAT) and provide summaries of reviews of these tests as found in the seventh and eighth editions of the Mental Measurements Yearbook (Oscar Krisen Buros, ed.). Appendix I identifies the 50 vocational programs of highest enrollment in 1977-1978 in West Virginia, OE code and title, enrollment, and occupational projections and outlooks for each.

CHAPTER 2

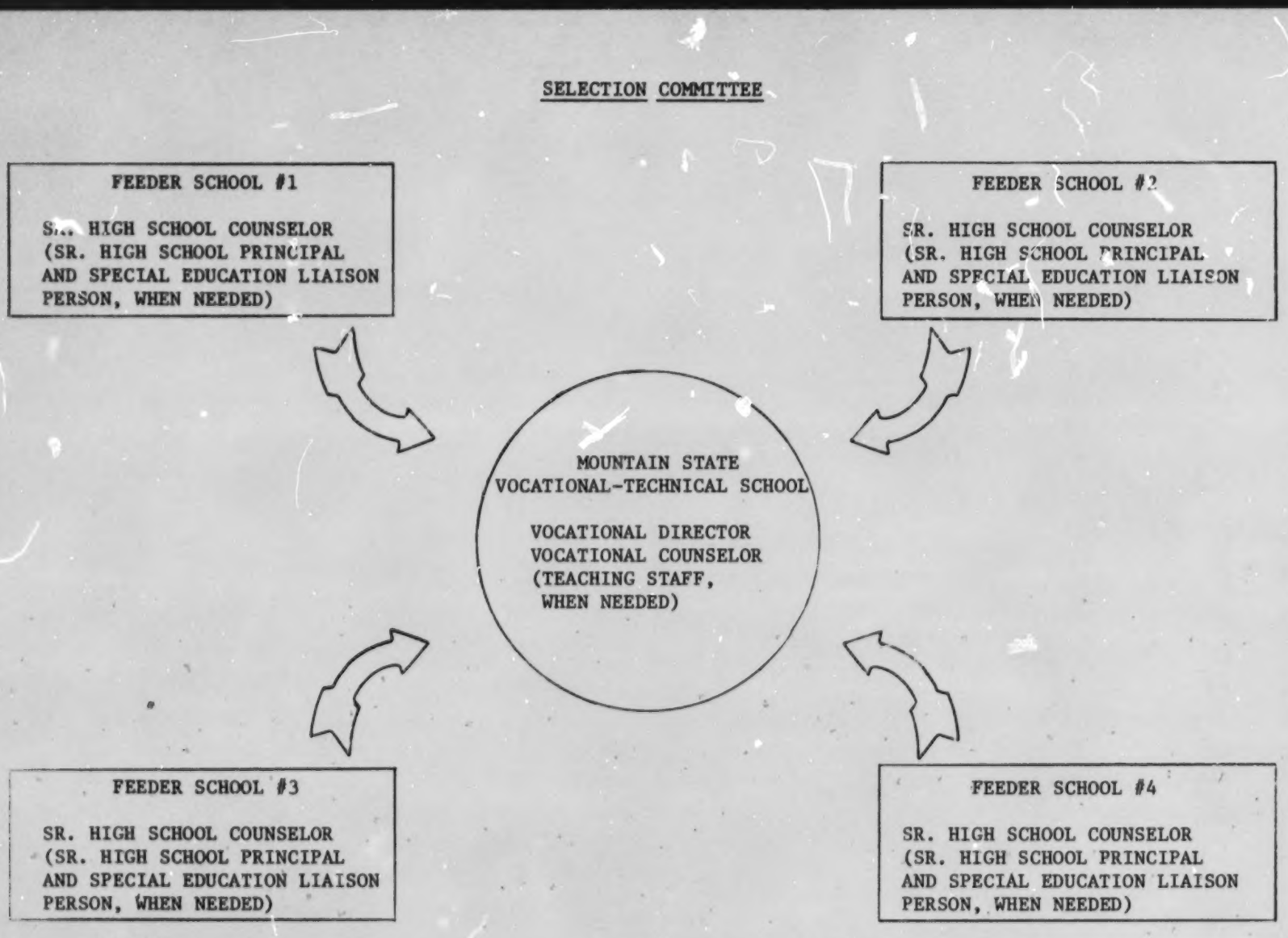
SELECTION COMMITTEE

Operating under the general guidance of the vocational center, a Selection Committee is the core of a balanced, ongoing effort to provide students in the service area with assurance of a rational system of selection and admission to vocational and technical education programs. As shown in Figure 2.1, the Vocational Director and the Vocational Counselor are augmented by the vocational teaching staff, as needed, as they work with designated staff of the feeder schools. Vocational teachers are primarily utilized to assist in the determination of the specific selection criteria to be used for their particular vocational programs and the formulation of assessment scales and the rating system.

From each feeder school, a Senior High School Counselor is the constant representative to the Selection Committee and, as needed, the Senior High School Principal and/or the Special Education Liaison Person are called upon as monitors of the selection process.

The Selection Committee's ongoing responsibility is to provide communications linkage with students, counselors and the public. It reviews, modifies and updates activities and is responsible for inservicing the respective feeder school staffs in reference to the selection of students for vocational education. Through the process of utilizing selection criteria, assessment scales and a rating system, the Selection Committee is also responsible for placing students in programs most closely allied to their individual interests, achievements, aptitudes and goals.

The functions of the Selection Committee are detailed in Figure 2.2.


SELECTION COMMITTEE
FEEDER SCHOOL #1
S... HIGH SCHOOL COUNSELOR
(SR. HIGH SCHOOL PRINCIPAL
AND SPECIAL EDUCATION LIAISON
PERSON, WHEN NEEDED)
FEEDER SCHOOL #2
SR. HIGH SCHOOL COUNSELOR
(SR. HIGH SCHOOL PRINCIPAL
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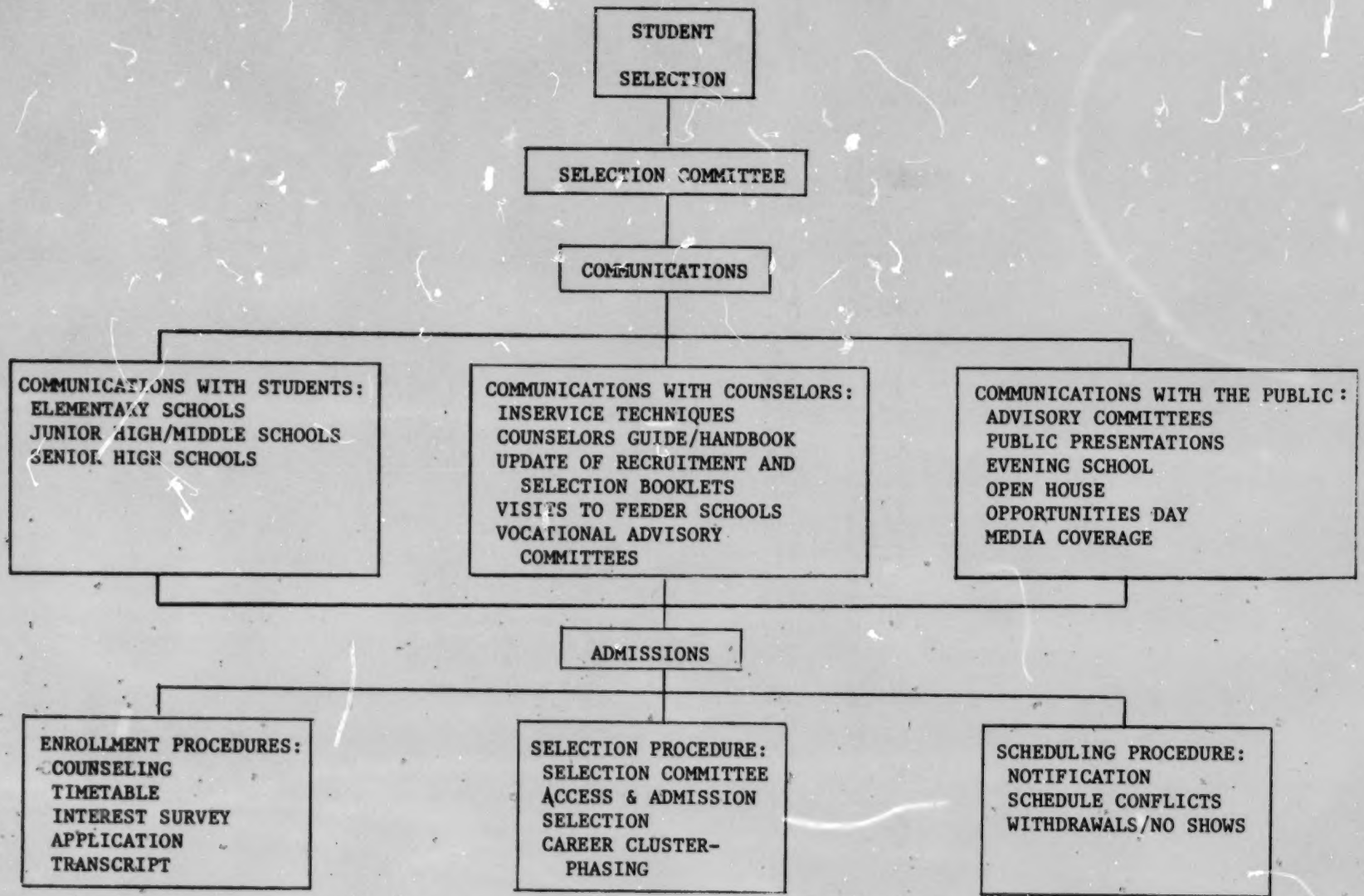
PERSON, WHEN NEEDED)
MOUNTAIN STATE
VOCATIONAL-TECHNICAL SCHOOL
VOCATIONAL DIRECTOR
VOCATIONAL COUNSELOR
(TEACHING STAFF,
WHEN NEEDED)
FEEDER SCHOOL #3
SR. HIGH SCHOOL COUNSELOR
(SR. HIGH SCHOOL PRINCIPAL
AND SPECIAL EDUCATION LIAISON
PERSON, WHEN NEEDED)
FEEDER SCHOOL #4
SR. HIGH SCHOOL COUNSELOR
(SR. HIGH SCHOOL PRINCIPAL
AND SPECIAL EDUCATION LIAISON
PERSON, WHEN NEEDED)

2-2

Figure 2.1



FUNCTIONS OF STUDENT SELECTION COMMITTEE

Figure 2.2

Communications

Provision of a continuous flow of current information to students, counselors and the public is a prime responsibility of the Selection Committee. The selection process can be useful, relevant and responsive only through a two-way flow in the communications system.

Communications with Students. From elementary school through high school, students are engaged in developing basic skills which provide them with a solid base for intellectual survival, coping and enrichment. They are engaged in developing decision-making skills, among them the decision of how to choose and prepare for a satisfying career that will provide an avenue for attainment of basic human needs and self-fulfillment. The Selection Committee works in tandem with feeder systems to provide a program of awareness, exploration and investigation of those employment opportunities which are often best approached through the broad range of vocational education. At the senior high school level, the Selection Committee assists students by encouraging a variety of exploratory and informative activities aimed at helping them make tentative career choices that will enhance their personal options. The Committee must not only assure that sufficient information is provided to students, but must also be a retriever of directive information from students, both vocational and nonvocational, if the communications system is to be effective.

Communications with Counselors. Feeder school counselors play key roles in the communications system. From their personal and professional information bases, counselors are an influential link in student recruitment and selection. The Selection Committee assures that feeder school counselors have opportunities for contact with local business and industry and State and regional vocational personnel. Through on-site visitations and participation on various vocational school and craft advisory committees there is opportunity for these counselors to

exchange ideas and information with the program staff of the vocational center. A handbook developed by the vocational center ties the counselors' first-hand knowledge of postsecondary education and employment opportunities, needs and requirements to the scope of services available at the vocational center. The Selection Committee, with its Feeder School Counselor members as chief liaisons, assures that each student is availed of full information.

Communications with the Public. In order to be effective and to enjoy essential public support and confidence, the vocational center must be able to communicate directly with the public. Direct and indirect involvement of the community is accomplished through news media presentations, open houses, advisory committees, social/civic/service organization visitations and speaking engagements, cooperative student employment, evening adult education programs, and school-supported contacts such as a school store or other services available to the public. The end result is an effective and efficient school-community relationship. The Selection Committee's responsibility is to foster this relationship through involvement in both advisory and facilitating capacities.

Admissions

Where its communications responsibilities are dependent upon effective relationships with many other supportive elements, the responsibility of the Selection Committee in the student admissions process is most directly evident. The effectiveness of enrollment, selection and scheduling are evident in the rate of student enrollment, placement and retention of students in satisfying and comfortable programs, and high rates of program completion and job placement in areas directly or closely related to the program of study.

Enrollment Procedures. The Selection Committee establishes a framework for enacting student enrollments to vocational programs for which the student has

interest and aptitude and through which preparation is provided for successful employment in a chosen field. Intelligent decisions and proper adjustments are made with the assistance of a strong counseling program which helps students make reasoned choices. The Selection Committee recommends patterns for vocational counseling: among tools available to counselors are a vocational interest survey following student program visitations, the student-kept Student Career Profile, the high school transcript, and professional aptitude-interest evaluations from a variety of standardized and hands-on instruments. The Selection Committee sets an action timetable for monthly counselors' meetings, testing dates, counselor and student visits to the vocational center and vocational counselor visits to the feeder schools, slide/film presentations, application deadlines, student acceptance notification, and other important dates.

Selection Procedure. A documented and validated selection procedure for admission to vocational programs is essential. That every student who wants vocational preparation shall have access to it is a legal and moral mandate. Perhaps the Selection Committee's most critical function is to enlist its collective expertise to insure that all students, regardless of race, religion, sex, national origin, or handicap be proffered the opportunity to participate in a nonrestrictive vocational program. However, no matter how conscientious the determining body may be in seeking to provide such assurance, some programs are almost consistently more popular than others. A planned procedure for determining program assignments must be firmly structured. The Selection Committee, whether working as a whole or in subcommittees, must consider each application individually. This requires confident communications and total cooperation between members of the considering group as students are selected for specific programs or clustering-phasing programs. Participation of ancillary Committee members (vocational teachers, feeder school Principals and Special Education Liaison personnel) is particularly appropriate during the selection process.

Scheduling Procedure. To assure that all students have available to them all phases of the total school experience, the Selection Committee considers such factors as bus transportation schedules, extracurricular activities, special schedules, and curricular restrictions of feeder schools when making decisions regarding student assignments. A certified list of accepted students and their program assignments is provided to feeder schools. Any schedule conflicts or program changes are accommodated by action of the Selection Committee, as are filling vacated program assignments upon notification by the vocational counselor of the vocational center or feeder school, or other appropriate representative.

A more detailed statement of the rationale and elements of the communications and admissions functions of the Selection Committee appears in the booklet Mountain State Vocational-Technical School: A Model for Recruitment, Selection Counseling, Placement.

CHAPTER 3

IDENTIFICATION OF STUDENT SELECTION CRITERIA

When pondering the question, "What is the best way to select a student into a vocational program?" AEC decided to approach it through two avenues:

1. A review of related research that dealt specifically with selection criteria.
2. A survey that would include not only what is happening within the State of West Virginia but also nationally.

In reviewing the literature that dealt specifically with research studies of success in vocational programs, it was found that most of the studies were conducted in the late 1950's, 1960's and early 1970's. One must take into consideration that there has been little validation of these studies in reference to race, color, national origin, sex and handicap. However, although the studies do not take these factors into consideration either as variables or in the conclusions, they were the best available sources at this particular time.

Table 3.1 is a summary of successful predictors of success in vocational programs, as reported in related research studies. These predictors are presented in rank order according to the incidence of frequency by which they were reported. Further analysis of the review of related research is designated in Appendix A, "Key to Vocational Programs Identified in Selection Criteria," (as illustrated in Appendices B and C); Appendix B, "Selection Criteria Not Related to Success in Vocational Education Programs as Identified in Review of Related Research"; and Appendix C, "Selection Criteria Related to Success in Vocational Education Programs as Identified in Review of Related Research." Appendix D presents "Sources of Selection Criteria Cited."

TABLE 3.1

SUMMARY OF SUCCESSFUL PREDICTORS OF SUCCESS IN VOCATIONAL PROGRAMS, AS REPORTED IN RELATED RESEARCH STUDIES

The following is a summary of predictors found to have a valid relationship with success in vocational programs, as identified in the review of related research. These predictors are presented by rank order, according to the incidence of frequency by which they were reported:

1. Grades
2. Mental level
3. Math grades
4. Mechanical reasoning
5. Reading scores
6. Attendance
7. Attitude
8. Spatial scores
9. Program interest
10. Abstract reasoning
11. Achievement scores
12. Aptitude scores

One of the ingredients that is of utmost importance in any research study in vocational education is getting a pulse from the professional staff who operate the vocational programs on a daily basis. Thus, Associated Educational Consultants, Inc., decided to survey every West Virginia county vocational center, multi-county vocational center and comprehensive high school. Each county vocational center and multi-county vocational center was also given the opportunity to recommend to AEC the name of one of its feeder schools to supply information in reference to recruitment and selection. Likewise, AEC surveyed all 50 states and the U.S. territories. A letter was sent to the state vocational director of each state and territory asking him to recommend the best vocational center in the state, in reference to recruitment and selection procedures. These vocational centers were, in turn, also given the opportunity to supply AEC with a feeder high school that would give additional input into the project. Responses to the questionnaire were most frequently provided by the vocational directors, high school principals and guidance personnel.

The total results of the survey of West Virginia and national vocational schools and feeder schools can be reviewed in the booklet Research Report: Development of Strategies for Improving Student Recruitment and Selection in Vocational Education.

Several of the highlights of the survey that AEC would like to express are related in this booklet. As is apparent in Table 3.2. "Vocational Programs and Standardized Tests, Related to Selection Criteria, as Identified by National and West Virginia Vocational Centers and Feeder Schools," a goodly number of standardized tests are used in trying to obtain valuable information as related to certain selection criteria for the various vocational programs. It will be noted that the two most widely used standardized tests are the General Aptitude Test Battery (GATB) and the Differential Aptitude Tests (DAT).

TABLE 3.2

VOCATIONAL PROGRAMS AND STANDARDIZED TESTS, RELATED TO SELECTION CRITERIA, AS IDENTIFIED BY NATIONAL AND WEST VIRGINIA VOCATIONAL CENTERS AND FEEDER SCHOOLS

CRITERIA	VOCATIONAL PROGRAM	STANDARDIZED TEST(S) USED
Abstract Reasoning	Drafting All Programs Mechanics Carpentry/Cabinetmaking Electronics Electricity Civil Technology	DAT Stanford Achievement Otis-Lennon SRA Achievement GATB CAT CTBS BETA WAIS Military ASVAB
Mechanical Reasoning	Auto Mechanics Machine Shop Air Conditioning/ Refrigeration All Programs Drafting Agriculture Agricultural Mechanics Metal Trades Carpentry Auto Body Bricklaying Electronics Industrial Electronics Mine Maintenance Welding Offset Printing Construction Sheet Metal Power Mechanics	VPI GATB DAT CAT Military ASVAB Dailey Vocational Tests
Spatial Relations Scores	Drafting Machine Shop All Programs Commercial Art Carpentry Electronics Civil Technology Electricity	VPI GATB DAT Military ASVAB CAT BETA Revised

TABLE 3.2 (Continued)

CRITERIA	VOCATIONAL PROGRAM	STANDARDIZED TEST(S) USED
Numerical Ability	LPN Accounting Electronics Placement All Programs Data Processing All B & I Areas Carpentry Drafting Auto Body Auto Mechanics Air Conditioning/ Refrigeration Bricklaying Industrial Electronics Mine Maintenance Welding Offset Printing Construction Machine Shop	GATB VPI DAT Prosser Notebook Guidelines SRA Achievement Military ASVAB NEDT State & County Testing CTBS Fundamental Achievement Tests TABE CAT Sequential Test of Basic Skills
Language Usage	LPN Business Education Accounting Clerical Secretarial All Programs All B & I Areas Medical Office Assistant	GATB VPI OVIS DAT SRA Achievement NEDT ACT Military ASVAB CAT CTBS Fundamental Achievement, Series 1 TABE State & County Testing
Reading Level	All Programs Multi Occupations Placement Nurses Aide Medical Office Assistant	Test of Academic Progress OVIS SRA Achievement IOWA Test of Reading Skills Stanford Paragraph Meaning State Test Military ASVAB CTBS GATB Fundamental Achievement Series TABE CAT Sequential Test of Basic Skills

TABLE 3.2 (Continued)

CRITERIA	VOCATIONAL PROGRAM	STANDARDIZED TEST(S) USED
Mental Level (IQ)	All Programs LPN Data Processing Medical Lab Steno Program Special Education Industrial Arts & Home Ec. Carpentry Drafting Electronics Medical Office Nurses Aide	VPI Lorge-Thorndike Otis GATB CTMM OVIS WISC WAIS SRA Achievement Stanford Binet Otis-Lennon Military ASVAB GTBS DAT BETA Revised State & County Testing CAT
Occupational Interest	All Programs Interest Inventory Employment Orientation All B & I Areas Career Exploration Occupational Survey Welding Auto Mechanics Auto Body	OVIS COPS COATS Job Matching CAT DAT Holland Self-Directed Search GATB Strong Campbell Interest Inventory Gordon Occupational Checklist Hall Occupational Orientation Inventory County-State Career Plans Survey CAI
Hands-on Evaluation	Health Building Trades Clerical Distributive Education Diversified Occupations Welding Auto Drafting Exploratory Cycle Employment Orientation Industrial Arts All Programs Career Exploration Occupational Survey YETP Summer Program Prevocational	COATS GATB Singer Vocational Evaluation System

TABLE 3.2 (Continued)

CRITERIA	VOCATIONAL PROGRAM	STANDARDIZED TEST(S) USED
Manual Dexterity	Employment Orientation All Programs Agriculture Business Mechanical Metal Fabrication Carpentry Machine Shop Auto Mechanic Masonry Welding Metal & Wood Shop	GATB Military ASVAB Stromberg Dexterity
Other: Color Vision Adjustment Personality Attendance & GPA Mathematics	All Programs Auto Mechanics Welding Machine Shop Drafting Electronics Auto Body	GATB VPI Rotter Incomplete Sentences Blank Minnesota Counseling Inventory Dvorine Color Vision CTBS Military ASVAB

Appendix E relates the nine aptitude scores derived through the GATB; Appendix F is the most recent review (Buros, 8th Edition) indicating both the positive and negative aspects of the GATB. Appendix G indicates the nine scores found on the DAT, and Appendix H reviews the positive and negative aspects of the DAT (Buros). From the aforementioned reviews, all indications seem to relate that these will be the two most widely used predictive tests in the 1980's, which was also indicated in the national and West Virginia survey. Thus, administration of the DAT and GATB is recommended for use in the West Virginia vocational student selection process. The selection criteria procedure will also use the State-County Testing Program, since it is given throughout the State.

Table 3.3 indicates a summary of criteria, other than testing, often used in selection of students for vocational education, as reported by national and West Virginia vocational centers: this is in rank order according to the frequency of response. Table 3.4 is indicating the same criteria, "other than testing," used in national vocational centers, West Virginia county/multi-county centers and West Virginia comprehensive high schools.

Table 3.5 indicates a rank order summary of criteria, other than testing, often used in selection of students for vocational education, as reported by national and West Virginia feeder schools. Table 3.6 indicates these same criteria as indicated by national feeder schools and West Virginia feeder schools.

The responses of the vocational centers and the feeder schools were identical on the first five criteria. Additional responses were also exactly the same except for their placement by frequency of response. This indicates a high degree of similarity between what the vocational centers and the feeder schools are citing as criteria, but differs considerably from what was related in Table 3.1 as a summary of useful predictors of success in vocational programs as reported in related research studies.

Thus, it was the recommendation of AEC to use a blend of the successful predictors reported in related research studies and professional opinion as reported by the respondents from national and West Virginia vocational and feeder school centers.

TABLE 3.3

SUMMARY OF CRITERIA, OTHER THAN TESTING, OFTEN USED IN SELECTION OF STUDENTS FOR VOCATIONAL EDUCATION, AS REPORTED BY NATIONAL AND WEST VIRGINIA VOCATIONAL CENTERS

Criteria other than testing were reported in the survey of national and West Virginia vocational centers as being used in the selection of students for vocational programs. In rank order, according to the frequency of response, are:

1. Program interest, as expressed by student
2. Counselor recommendation
3. Attendance
4. Grade level
5. Teacher recommendation
6. Relative subject average (subjects related to program of interest)
7. Ability to work with others
8. Physical condition
9. Math grades
10. Grade point average
11. English grades

TABLE 3.4

CRITERIA, OTHER THAN TESTING, OFTEN USED IN SELECTION OF STUDENTS FOR VOCATIONAL PROGRAMS AS REPORTED BY NATIONAL AND WEST VIRGINIA VOCATIONAL CENTERS

Selection Criteria	National Voc. Ctr.	WV County/ Multi-Cty.	W.V. Comp.H.S.	Total Responses	
	%	%	%	%	N
Program interest, as expressed by student	83	84	85	84	59
Counselor recommendation	80	81	79	80	56
Attendance	63	61	21	54[a]	38
Grade level	47	65	36	51	36
Teacher recommendation	50	42	57	49	34
Relative subject average (subjects related to program of interest)	47	23	7	30[b]	21
Ability to work with others	23	27	0	20	14
Other	30	12	7	18	13
Physical condition	23	12	0	14	10
Math grades	17	15	7	14	10
Grade point average	0	27	7	11[c]	8
English grades	17	4	0	9	6
Base number	30	26	14		70

[a]Chi-square: 7.63, p. $<.02$
[b]Chi-square: 8.04, p. $<.01$
[c]Chi-square: 10.29, p. $<.005$

Note: Total of activities sums to greater than 100% because many respondents indicated more than one activity.
Note: Any percentages not noted do not differ significantly across groups.

TABLE 3.5

SUMMARY OF CRITERIA, OTHER THAN TESTING, OFTEN USED IN SELECTION OF STUDENTS FOR VOCATIONAL EDUCATION, AS REPORTED BY NATIONAL AND WEST VIRGINIA FEEDER SCHOOLS

Criteria other than testing were reported in the survey of national and West Virginia feeder schools as being used in the selection of students for vocational programs. In rank order, according to the frequency of response, are:

1. Program interest, as expressed by student
2. Counselor recommendation
3. Attendance
4. Grade level
5. Teacher recommendation
6. Ability to work with others
7. Relative subject average (subjects related to program of interest)
8. Grade point average
9. Math grades
10. Physical condition
11. English grades

TABLE 3.6

CRITERIA, OTHER THAN TESTING, OFTEN USED IN SELECTION OF STUDENTS FOR VOCATIONAL PROGRAMS AS REPORTED BY NATIONAL AND WEST VIRGINIA FEEDER SCHOOLS

Selection Criteria	National Feeder	West Virginia Feeder	Total Responses	
	%	%	%	N
Program interest, as expressed by student	85	95	91	60
Counselor recommendation	74	74	74	49
Attendance	63	64	64	42
Grade level	63	51	56	37
Teacher recommendation	37	44	41	27
Ability to work with others	30	28	29	19
Relative subject average (subject related to program of interest)	33	23	27	18
Grade point average	11	21	17	11
Math grades	19	13	15	10
Physical condition	11	15	14	9
Other	4	13	9	6
English grades	7	5	6	4
Base number	27	39		66

Note: Total of activities sums to greater than 100% because many respondents indicated more than one activity.

Note: Any percentages not noted do not differ significantly across groups.

CHAPTER 4

SELECTION CRITERIA, BY VOCATIONAL-TECHNICAL PROGRAM

The 50 vocational programs with the highest enrollments in West Virginia were identified, by USOE code, from FY 1977-1978 enrollment data. These 50 programs are shown in Appendix I, which also indicates the 1977-1978 enrollments, West Virginia employment projections (1974-1985), and the employment outlook through 1985 as described in the Occupational Outlook Handbook, 1978-79 Edition (U.S. Department of Labor).

The 50 programs were analyzed (as related in Chapter 7) in relation to occupational titles (Dictionary of Occupational Titles, 4th Edition, U.S. Department of Labor) which are most directly related to employment opportunities available to graduates of West Virginia's vocational programs. The analyses included transferring the numerical DOT codes to the verbal designations of levels of performance required on these jobs in dealing with "people," "data," and "things." Subsequent analyses were performed to convert information about these jobs (DOT descriptions of job responsibilities and requirements as well as people-data-things) to commonly observable work factors usually involved in performing the jobs. The analyses and interpretations were verified with West Virginia Vocational Program Supervisors.

Using this information as an extrusion base, selection criteria were developed for each of the 50 programs by synthesizing and analyzing the criteria reported used in vocational programs across the nation, as identified in the research studies reviewed and as reported through the survey of vocational and feeder schools (Chapter 3).

The resultant 17 descriptive selection criteria recommended for the 50 programs in West Virginia are a composite of criteria pertaining to past student performance, interest, aptitude and professional recommendations. This chapter lists the definitions of terms as necessary to understand and utilize the criteria. The criteria for each vocational program (maximum, ten per program) were reviewed by vocational instructors and verified by West Virginia Vocational Program Supervisors.

As previously mentioned, in Chapter 3, the three tests that could be administered to obtain measurement in relation to some of the criteria are: the Differential Aptitude Tests (DAT), the General Aptitude Test Battery (GATB), and the West Virginia State-County Testing Program battery, which is given to every student in the State and thus could be an automatic source. Ideally, if the DAT and the GATB were both administered, the Selection Committee could use the specific selection criteria for each of the 50 programs as related in the matrix in Table 4.1 and listed in Table 4.2.

DEFINITION OF TERMS

1. Abstract Reasoning	The ability to grasp ideas not presented in words or numbers and to employ deductive reasoning. (DAT)
2. Attendance	Alternative 1 - A composite of the number of days absent in 8th and 9th grades and the first semester of 10th grade (for students applying for 11th grade admission). Alternative 2 - Number of days absent from 8th and 9th grades. Alternative 3 - Number of days absent from 9th grade. (Note: Take into consideration any student who has had a severe health problem in these years that would automatically yield a high absenteeism.)
3. Clerical Speed and Accuracy/Perception	(1) The ability to compare and mark written lists of words or numbers rapidly and and accurately. (Clerical Speed and Accuracy, DAT)

(2) The ability to rapidly and accurately perceive pertinent detail in verbal or tabular form, to observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computations. (Clerical Perception, GATB)

4. Counselor Evaluation

A feeder school counselor's evaluation of the student based on recorded criteria with reference to program success:

(1) Recorded notations from personal interview with student and/or parents at which interests and aptitudes and career goals and avenues to attainment were discussed. Interview(s) include reviews and analyses of:
   (a) Grade point average, attendance, Teacher Rating Forms, aptitude/interest scores, and
   (b) Student Career Profile (as related in booklet Student Recruitment for Vocational Education), the student's self-assessment of achievement, interest, hands-on experiences, self concept and tentative career choices as recorded in 7th, 8th, 9th and 10th grades.
   (c) "Interpretative Youth Handbook" evaluation of subject interest rating, school plans, and career plans (Student Report of State-County Testing Program).

(2) Professional evaluation (in conjunction with those of others familiar with any special circumstances, such as parents, physician, Special Education Liaison Person, High School Principal, etc.).

(3) Any other pertinent information which would be related to the student's potential for completion of the vocational program or attainment of competencies related to the program.

5. Finger Dexterity

The ability to move the fingers and to manipulate small objects rapidly and accurately. (GATB)

6. Form Perception

The ability to perceive pertinent detail in pictorial or graphic material, to make visual comparisons and discriminations and to see slight differences in the shapes and shading of figures and in the width and length of lines. (GATB)

7.	Grade Point Average	Alternative 1 - A cumulative grade point average for 8th, 9th and first semester of 10th grade. Alternative 2 - A cumulative grade point average for 8th and 9th grades. Alternative 3 - A cumulative grade point average for 9th grade. A student's cumulative average shall be computed on the basis of all academic work which received a regular letter grade. The average shall be computed by summing the quality points for each letter-graded course and dividing by the number of such courses taken. All averages shall be carried to two decimal points.
8.	Manual Dexterity	The ability to move the hands easily and skillfully and to work with the hands in placing and turning. (GATB)
9.	Mechanical Reasoning	The ability to grasp commonly observable principles of physics, such as laws governing simple appliances, machinery, tools and motions. (DAT)
10.	Motor Coordination	The ability to coordinate eyes and hands or fingers rapidly and accurately in making precise movements with speed. (GATB)
11.	Numerical Ability	(1) The ability to grasp ideas expressed in numbers and to think and reason quickly and accurately with numbers. (Numerical Ability, DAT) (2) The ability to perform arithmetic operations quickly and accurately. (Numerical Aptitude, GATB) (3) The ability to grasp and apply arithmetic/mathematic concepts and perform computations accurately. (Comprehensive Test of Basic Skills, State-County Testing Program; use total of Computation, Concepts and Application scores.)
12.	Program Interest	A composite appraisal by the feeder school counselor derived from: (1) Student Career Profile (2) Vocational Interest Survey, completed by the student after on-site experience (visitation and/or "shadowing" at vocational program(s) and/or actual work site(s), or following vocational counselor presentation of slides or film of vocational programs. (3) Student application. (4) Verbally expressed interests, from interview.

13. Reading Comprehension	(1) The ability to grasp the meanings of words and to understand the meaning of whole sentences or paragraphs. (Comprehensive Test of Basic Skills, State-County Testing Program; use total of Comprehension and Vocabulary scores.) (2) The ability to grasp the meaning of words, to comprehend language, to understand the relationships between words and the meaning of whole sentences and paragraphs. (Verbal Ability, GATB)
14. Spatial Relationships	(1) The ability to visualize three-dimensional objects from two-dimensional representations. (Space Relations, DAT) (2) The ability to think visually about geometric objects, to understand two-dimensional representation of three-dimensional objects, and to recognize relationships resulting from the movement of objects in space. (Spatial Ability, GATB)
15. Spelling	The ability to recognize correct and incorrect spelling of common English words. (1) DAT (2) Comprehensive Test of Basic Skills, State-County Testing Program; use Spelling score of Language battery.
16. Teacher Recommendation	Each student will need a recommendation from at least three teachers: one of a basic academic course (math, English, science); one of a prevocational or practical arts course; and one teacher selected by the applicant. Teachers will rate the students in reference to attitude, responsibility and neatness. The teachers' rating scores will be averaged to get the total teacher recommendation score. The averaging will be done by the feeder high school's counselor.
17. Verbal Reasoning	(1) The ability to understand the meanings of words, to comprehend language and to think and reason with words. (Verbal Reasoning, DAT) (2) The ability to express ideas through correct mechanical application of language elements. (Comprehensive Test of Basic Skills, State-County Testing Program; use total of Mechanical and Expression scores of Language battery.)

TABLE 4.1

SELECTION CRITERIA BY
VOCATIONAL-TECHNICAL PROGRAM

Criteria	AGRICULTURE			BUSINESS & OFFICE EDUCATION			DISTRIBUTIVE EDUCATION						
	Agricultural Production	Agricultural Mechanics	Grounds Maintenance	Accounting/ Computing	Clerical	Secretarial/ Stenographic	Distributive Education	Advertising Services	Apparel & Accessories	Food Distribution	Food Service	General Merchandise	Retail Trades, Other
Abstract Reasoning[1]		X											
Attendance	X	X	X	X	X	X	X	X	X	X	X	X	X
Clerical Speed & Accuracy[1]/Perception[2]				X	X	X	X	X	X	X	X	X	X
Counselor Recommendation	X	X	X	X	X	X	X	X	X	X	X	X	X
Finger Dexterity[2]				X	X	X							
Form Perception[2]								X	X			X	X
Grade Point Average	X	X	X	X	X	X	X	X	X	X	X	X	X
Manual Dexterity[2]	X	X	X										
Mechanical Reasoning[1]	X	X	X										
Motor Coordination[2]													
Numerical Ability[1,2,3]	X	X		X	X	X	X		X	X	X	X	X
Program Interest	X	X	X	X	X	X	X	X	X	X	X	X	X
Reading Comprehension[2,3]		X		X	X	X							
Spatial Relationships[1,2]								X	X			X	X
Spelling[1,3]				X	X	X		X					
Teacher Recommendation	X	X	X	X	X	X	X	X	X	X	X	X	X
Verbal Reasoning[1,3]							X	X	X	X	X	X	X

[1]DAT
[2]GATB
[3]State-County Testing Program

TABLE 4.1 (Continued)

SELECTION CRITERIA BY
VOCATIONAL-TECHNICAL PROGRAM

Criteria	HEALTH OCCUPATIONS				HOME ECONOMICS				TECHNICAL ED.		TRADE & INDUSTRIAL		
	Dental Assisting	Practical Vocational Nursing	Nursing Assistance Aid	Medical Assistant	Care & Guidance of Children	Clothing Mgt., Production & Services	Food Mgt., Production & Services	Inst. & Home Mgt.& Supporting Services	Electronic Technology	Computer Programmer	Air Conditioning	Automotive Services	Body and Fender
Abstract Reasoning[1]									X	X			
Attendance	X	X	X	X	X	X	X	X	X	X	X	X	X
Clerical Speed & Accuracy[1]/Perception[2]	X			X	X		X	X		X			
Counselor Recommendation	X	X	X	X	X	X	X	X	X	X	X	X	X
Finger Dexterity[2]	X					X				X	X	X	
Form Perception[2]						X							X
Grade Point Average	X	X	X	X	X	X	X	X	X	X	X	X	X
Manual Dexterity[2]	X	X	X	X			X				X	X	X
Mechanical Reasoning[1]							X	X	X		X	X	X
Motor Coordination[2]	X	X		X	X	X		X					
Numerical Ability[1,2,3]		X		X		X	X	X	X	X	X	X	
Program Interest	X	X	X	X	X	X	X	X	X	X	X	X	X
Reading Comprehension[2,3]		X	X	X	X				X	X	X	X	
Spatial Relationships[1,2]						X			X				X
Spelling[1,3]													
Teacher Recommendation	X	X	X	X	X	X	X	X	X	X	X	X	X
Verbal Reasoning[1,3]					X								

[1]DAT
[2]GATB
[3]State-County Testing Program

TABLE 4.1 (Continued)

SELECTION CRITERIA BY
VOCATIONAL-TECHNICAL PROGRAM

Criteria	TRADE & INDUSTRIAL (Continued)													
	Auto Mechanics	Commercial Art	Construction & Maintenance Trades	Construction & Maintenance Trades, Other	Carpentry	Masonry	Custodial Services	Diesel Mechanic	Drafting	Electricity (Residential)	Industrial Electrician	Electrical Occupations, Other	Industrial Electronics
Abstract Reasoning[1]		X											X
Attendance	X	X	X	X	X	X	X	X	X	X	X	X	X
Clerical Speed & Accuracy[1]/Perception[2]													
Counselor Recommendation	X	X	X	X	X	X	X	X	X	X	X	X	X
Finger Dexterity[2]	X							X					X
Form Perception[2]		X	X	X	X	X			X				
Grade Point Average	X	X	X	X	X	X	X	X	X	X	X	X	X
Manual Dexterity[2]	X		X	X	X	X		X		X	X	X	
Mechanical Reasoning[1]	X		X	X	X	X		X		X	X	X	X
Motor Coordination[2]		X							X	X	X	X	
Numerical Ability[1,2,3]	X		X	X	X	X		X	X	X	X	X	X
Program Interest	X	X	X	X	X	X	X	X	X	X	X	X	X
Reading Comprehension[2,3]	X							X	X	X	X	X	X
Spatial Relationships[1,2]		X	X	X	X	X			X				
Spelling[1,3]													
Teacher Recommendation	X	X	X	X	X	X	X	X	X	X	X	X	X
Verbal Reasoning[1,3]													

[1]DAT
[2]GATB
[3]State-County Testing Program

TABLE 4.2

STUDENT SELECTION CRITERIA, BY PROGRAM (USOE CODE),
FOR SECONDARY VOCATIONAL-TECHNICAL EDUCATION

AGRICULTURE

1.0100 Agricultural Production
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Teacher Recommendation

1.0300 Agricultural Mechanics
- Abstract Reasoning
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

1.9905 Grounds Maintenance
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Program Interest
- Teacher Recommendation

DISTRIBUTIVE EDUCATION

4.0000 Distributive Education
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Grade Point Average
- Numerical Ability
- Program Interest
- Teacher Recommendation
- Verbal Reasoning

4.0100 Advertising Services
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Program Interest
- Spatial Relationships
- Spelling
- Teacher Recommendation
- Verbal Reasoning

DISTRIBUTIVE EDUCATION Continued

4.0200 Apparel & Accessories
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation
- Verbal Reasoning

4.0600 Food Distribution
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Grade Point Average
- Numerical Ability
- Program Interest
- Teacher Recommendation
- Verbal Reasoning

4.0700 Food Service
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Grade Point Average
- Numerical Ability
- Program Interest
- Teacher Recommendation
- Verbal Reasoning

4.0800 General Merchandise
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation
- Verbal Reasoning

4.2000 Retail Trades, Other
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation
- Verbal Reasoning

TABLE 4.2 (Continued)

HEALTH OCCUPATIONS

7.0101 Dental Assisting
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Finger Dexterity
- Grade Point Average
- Manual Dexterity
- Motor Coordination
- Program Interest
- Teacher Recommendation

7.0302 Practical Vocational Nursing
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Motor Coordination
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

7.0303 Nursing Assistance Aid
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Program Interest
- Reading Comprehension
- Teacher Recommendation

7.0904 Medical Assistant
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Motor Coordination
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

HOME ECONOMICS

9.0201 Care and Guidance of Children
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Grade Point Average
- Motor Coordination
- Program Interest
- Reading Comprehension
- Teacher Recommendation
- Verbal Reasoning

HOME ECONOMICS Continued

9.0202 Clothing Management, Production and Services
- Attendance
- Counselor Recommendation
- Finger Dexterity
- Form Perception
- Grade Point Average
- Motor Coordination
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

9.0203 Food Management, Production and Services
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Teacher Recommendation

9.0205 Institutional and Home Management and Supporting Services
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Grade Point Average
- Mechanical Reasoning
- Motor Coordination
- Numerical Ability
- Program Interest
- Teacher Recommendation

BUSINESS AND OFFICE

14.0100 Accounting/Computing
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Finger Dexterity
- Grade Point Average
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

TABLE 4.2 (Continued)

BUSINESS AND OFFICE Continued)

14.0300 Clerical
- Attendance
- Clerical Speed Accuracy
- Finger Dexterity
- Grade Point Average
- Numerical Ability
- Program Interest
- Reading Comprehension
- Spelling
- Teacher Recommendation
- Typing Speed

14.0700 Secretarial/Stenographic
- Attendance
- Clerical Speed Accuracy
- Finger Dexterity
- Grade Point Average
- Numerical Ability
- Program Interest
- Reading Comprehension
- Spelling
- Teacher Recommendation
- Typing Speed

TECHNICAL

16.0108 Electronic Technology
- Abstract Reasoning
- Attendance
- Counselor Recommendation
- Grade Point Average
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Reading Comprehension
- Spatial Relationships
- Teacher Recommendation

16.0401 Computer Programmer
- Abstract Reasoning
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Finger Dexterity
- Grade Point Average
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

TRADE AND INDUSTRIAL

17.0100 Air Conditioning
- Attendance
- Counselor Recommendation
- Finger Dexterity
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

17.0300 Automotive Services
- Attendance
- Counselor Recommendation
- Finger Dexterity
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

17.0301 Body and Fender
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Program Interest
- Spatial Relationships
- Teacher Recommendation

17.0302 Auto Mechanics
- Attendance
- Counselor Recommendation
- Finger Dexterity
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

17.0700 Commercial Art
- Abstract Reasoning
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Motor Coordination
- Program Interest
- Spatial Relationships
- Teacher Recommendation

TABLE 4.2 (Continued)

TRADE AND INDUSTRIAL Continued

17.1000 Construction and Maintenance Trades
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

17.1001 Carpentry
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

17.1002 Electricity (Residential)
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Motor Coordination
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

17.1004 Masonry
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

TRADE AND INDUSTRIAL Continued

17.1099 Construction and Maintenance Trades, Other
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

17.1100 Custodial Services
- Attendance
- Counselor Recommendation
- Grade Point Average
- Program Interest
- Teacher Recommendation

17.1200 Diesel Mechanic
- Attendance
- Counselor Recommendation
- Finger Dexterity
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Reading Comprehension
- Spatial Relationships
- Teacher Recommendation

17.1300 Drafting
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Motor Coordination
- Numerical Ability
- Program Interest
- Reading Comprehension
- Spatial Relationships
- Teacher Recommendation

17.1401 Industrial Electrician
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Motor Coordination
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

TABLE 4.2 (Continued)

TRADE AND INDUSTRIAL Continued

17.1499 Electrical Occupations, Other
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Motor Coordination
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

17.1502 Industrial Electronics
- Abstract Reasoning
- Attendance
- Counselor Recommendation
- Finger Dexterity
- Grade Point Average
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

17.1503 Radio/Television Repair
- Abstract Reasoning
- Attendance
- Counselor Recommendation
- Finger Dexterity
- Grade Point Average
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

17.1900 Graphic Arts Occupations
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Motor Coordination
- Numerical Ability
- Program Interest
- Teacher Recommendation

17.2302 Machine Shop
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

TRADE AND INDUSTRIAL Continued

17.2304 Metal Trades (Combined)
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

17.2305 Sheet Metal
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

17.2306 Welding and Cutting
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

17.2602 Cosmetology
- Attendance
- Counselor Recommendation
- Finger Dexterity
- Form Perception
- Grade Point Average
- Manual Dexterity
- Program Interest
- Reading Comprehension
- Spatial Relationships
- Teacher Recommendation

17.2902 Cook/Chef
- Attendance
- Clerical Speed Accuracy
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Teacher Recommendation

TABLE 4.2 (Continued)

TRADE AND INDUSTRIAL Continued

17.3101 Power Mechanics
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

17.3601 Millwork and Cabinet Making
- Attendance
- Counselor Recommendation
- Form Perception
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Numerical Ability
- Program Interest
- Spatial Relationships
- Teacher Recommendation

17.3703 Mine Machinery Repair
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Motor Coordination
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

17.3704 Mine Maintenance (Cluster)
- Attendance
- Counselor Recommendation
- Grade Point Average
- Manual Dexterity
- Mechanical Reasoning
- Motor Coordination
- Numerical Ability
- Program Interest
- Reading Comprehension
- Teacher Recommendation

CHAPTER 5

PROCEDURES FOR DEVELOPING AND UTILIZING STUDENT SELECTION GUIDES

The success of the procedure for selecting students for vocational programs is highly related to responsible utilization of the Steering Committee and its commitment to the selection process. The very make-up of the Committee provides and requires a great deal of communication between the feeder high schools and the vocational center.

At the onset of establishing a selection procedure, the Vocational Director, the Vocational Counselor and the vocational teachers must assume the major responsibility for developing a set of criteria, the assessment scale and attendant rating scale for each vocational or technical program so that all feeder schools are working with uniform scales for the programs. After a Student Selection Guide (containing criteria, assessment scale and rating scale) is established for each program, the Guides should be approved by the total Selection Committee. They should then be validated to assure that they have demonstrated relationships to performance in the programs for which they were designed. It is particularly important that they do not discriminate against members of protected groups (by race, color, national origin, sex or handicap). After validation, the Guides are again approved by the Selection Committee for use in selecting students for those programs for the next school year. The Student Selection Guides can be changed by the Selection Committee at a later date, if necessary, particularly if subsequent validation efforts do not empirically demonstrate that the criteria are related to success and/or if the criteria are shown to systematically discriminate against students on the basis of their race, sex, handicap or national origin.

Once the Student Selection Guides have been approved by the Selection Committee, and by the School Board, the major responsibility for their use shifts to the feeder school guidance counselor. For each criterion on the Student Selection Guide, the counselor records the assessments and related ratings.

[It will be noted that this is an extensive task and would make inordinate demands upon the time of the high school counselor. Therefore, those scores and other items which are readily retrievable from school information can be entered by nonprofessional school employees/the secretarial staff under the counselor's direction. The counselor is then responsible for transposing the (scores) to rating scale points.]

Readily retrievable sources of the numeric entries are cumulative records (attendance and grade point average) and test scores from the State-County Testing Program, the DAT and GATB. These present relatively unbiased measures of aptitudes, yet it should be cautioned that, if more than one score is available for any criteria, all should be carefully weighed since testing bias based on factors relating to race, sex, handicap and national origin has not been widely studied, nor has the potential problem of difficulties with reading level and language. The Student Career Profile and other recorded interest indicators and the personal interview with the student will be used extensively by the counselor.

In this chapter is an example of the basic Student Selection Guide (Figure 5.1) format and examples of assessment scales for the criteria (Table 5.1).

The Assessment Scale

Assessment scales should be developed for no more than ten criteria for each vocational or technical program. This is basically the responsibility of the Vocational Director, the Vocational Counselor and the vocational teacher. They should be approved by the Selection Committee and the School Board in reference to the assessment intervals as related to the number of points awarded for each criteria, as illustrated in Examples of Assessment Scales (Table 5.1).

Figure 5.1

MOUNTAIN STATE VOCATIONAL-TECHNICAL SCHOOL

STUDENT SELECTION GUIDE

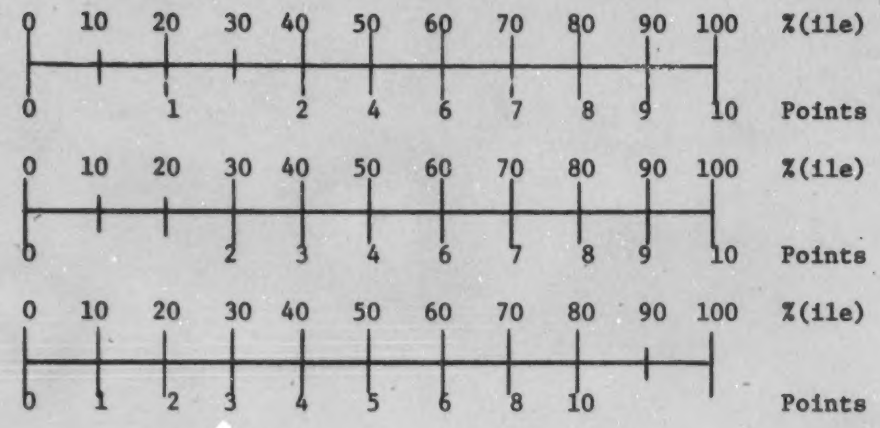
Student's Name_____ Vocational Program_____

SELECTION CRITERIA	ASSESSMENT SCALE	RATING
	TOTAL RATING	

TABLE 5.1

EXAMPLES OF ASSESSMENT SCALES

ABSTRACT REASONING



ATTENDANCE

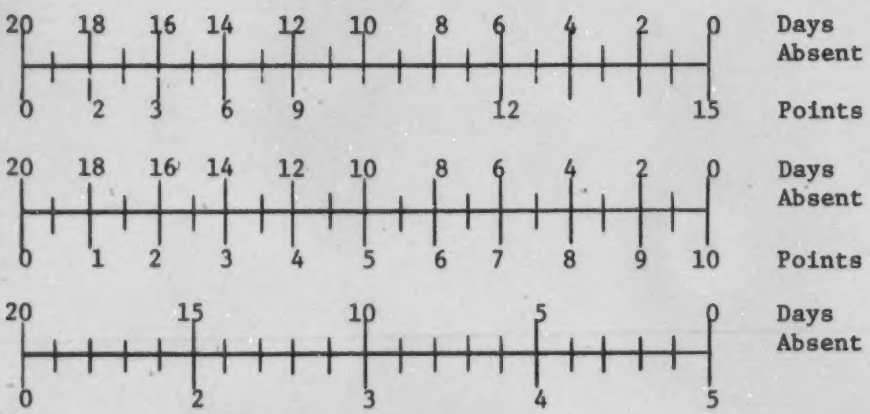
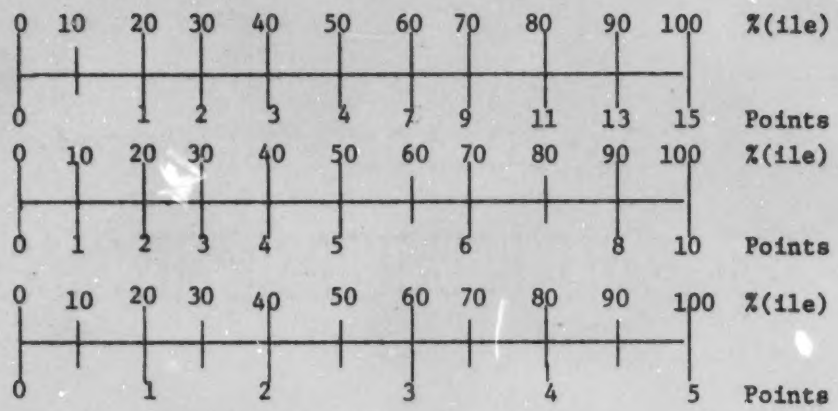


TABLE 5.1 (Continued)

EXAMPLES OF ASSESSMENT SCALES

CLERICAL SPEED AND ACCURACY/ PERCEPTION



COUNSELOR EVALUATION

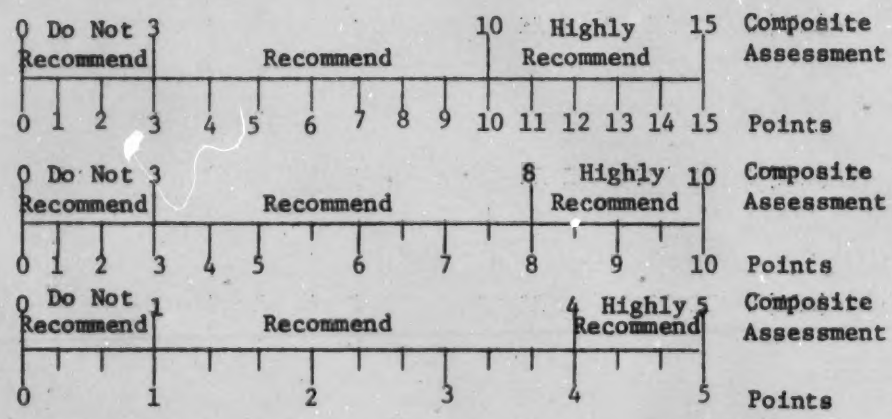
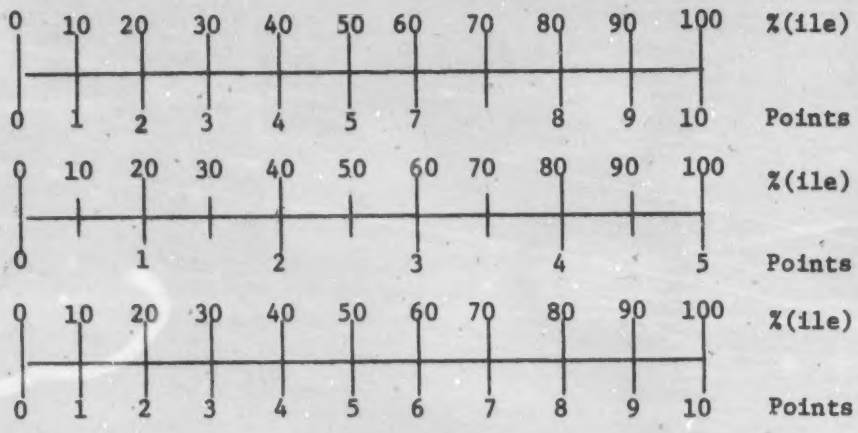

0 Do Not Recommend 3 Recommend 10 Highly Recommend 15 Composite Assessment
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Points
0 Do Not Recommend 3 Recommend 8 Highly Recommend 10 Composite Assessment
0 1 2 3 4 5 6 7 8 9 10 Points
0 Do Not Recommend 1 Recommend 4 Highly Recommend 5 Composite Assessment
0 1 2 3 4 5 Points

TABLE 5.1 (Continued)

EXAMPLES OF ASSESSMENT SCALES

FINGER DEXTERITY



FORM PERCEPTION

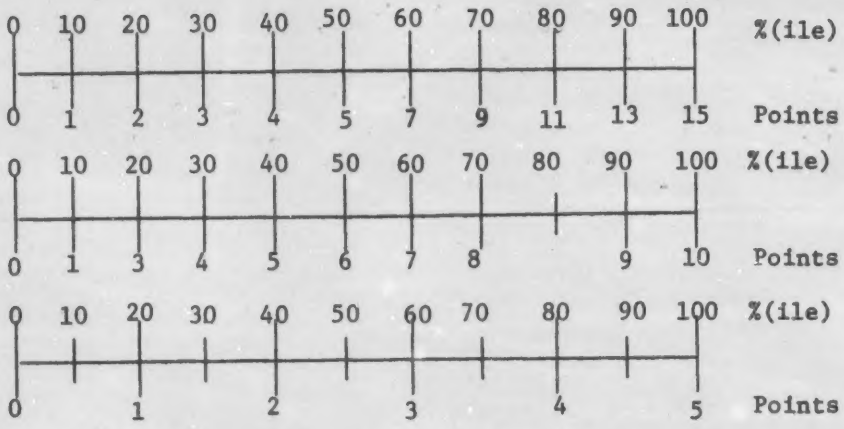
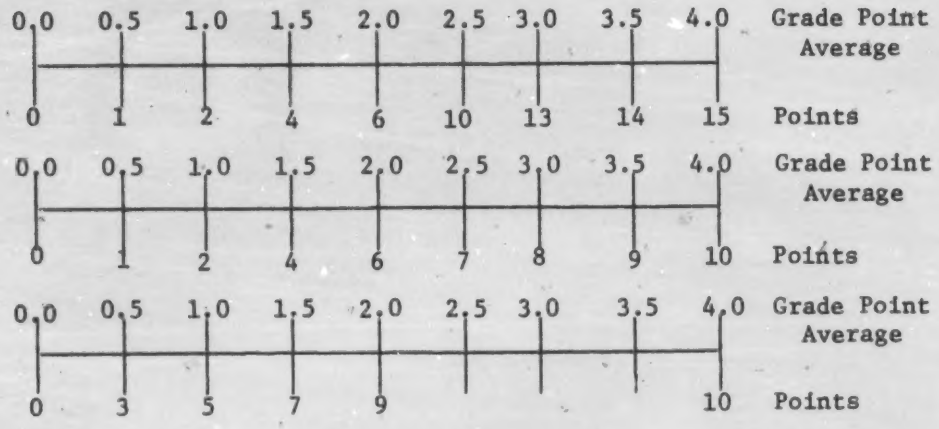


TABLE 5.1 (Continued)

EXAMPLES OF ASSESSMENT SCALES

GRADE POINT AVERAGE



GRADES (RELATED)

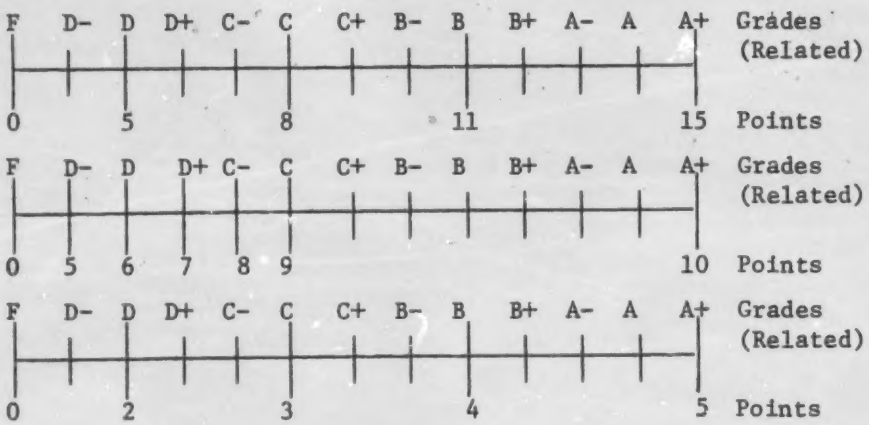
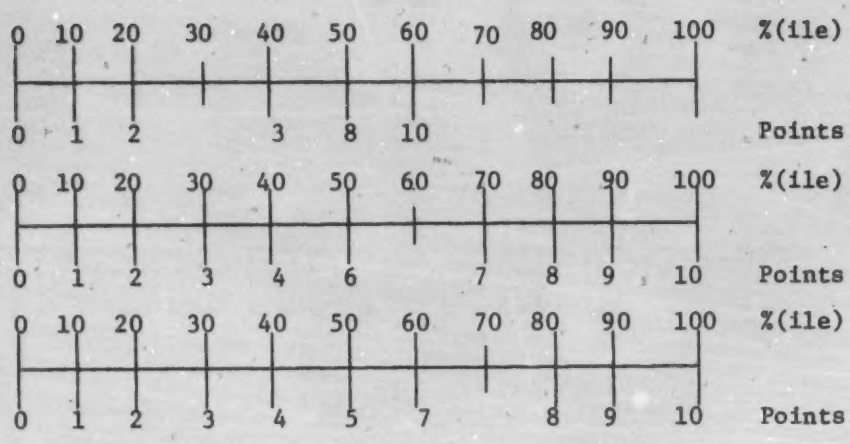

F D- D D+ C- C C+ B- B B+ A- A A+
Grades (Related)
0 5 8 11 15
Points
F D- D D+ C- C C+ B- B B+ A- A A+
Grades (Related)
0 5 6 7 8 9 10
Points
F D- D D+ C- C C+ B- B B+ A- A A+
Grades (Related)
0 2 3 4 5
Points

TABLE 5.1 (Continued)

EXAMPLES OF ASSESSMENT SCALES

MANUAL DEXTERITY



MECHANICAL REASONING

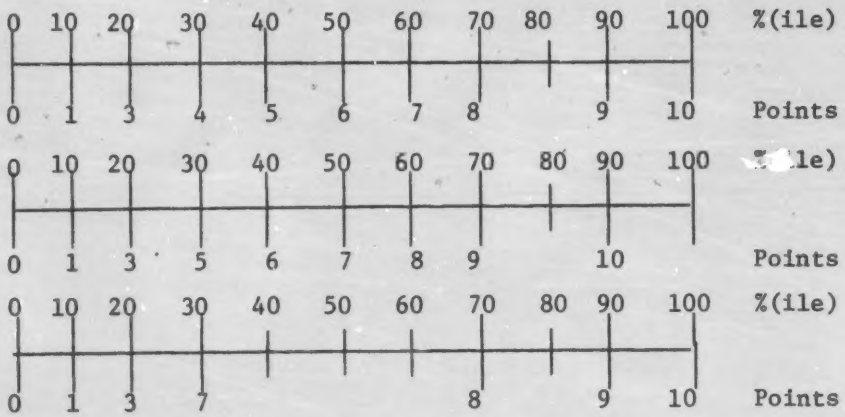
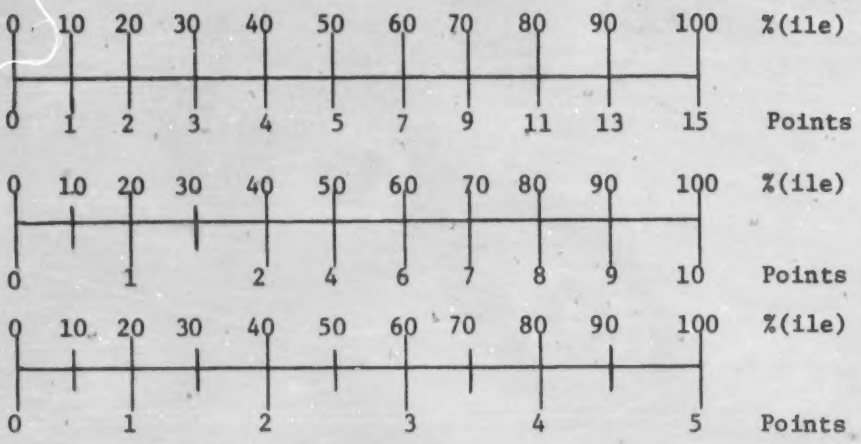


TABLE 5.1 (Continued)

EXAMPLES OF ASSESSMENT SCALES

MOTOR COORDINATION



NUMERICAL ABILITY

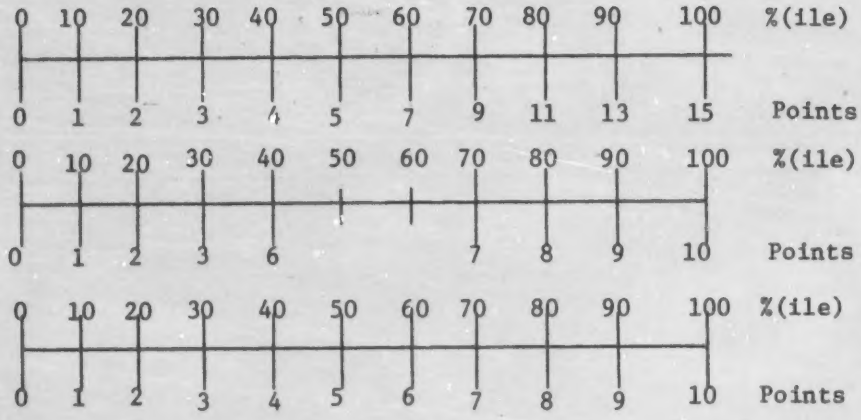
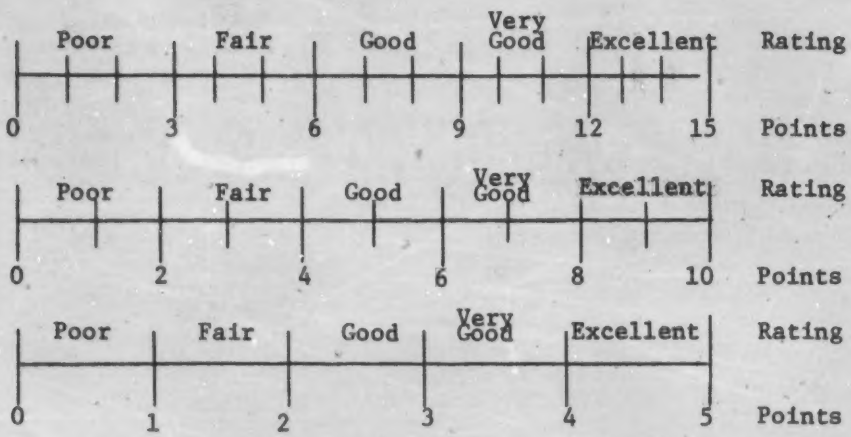


TABLE 5.1 (Continued)

EXAMPLES OF ASSESSMENT SCALES

PROGRAM INTEREST



READING COMPREHENSION

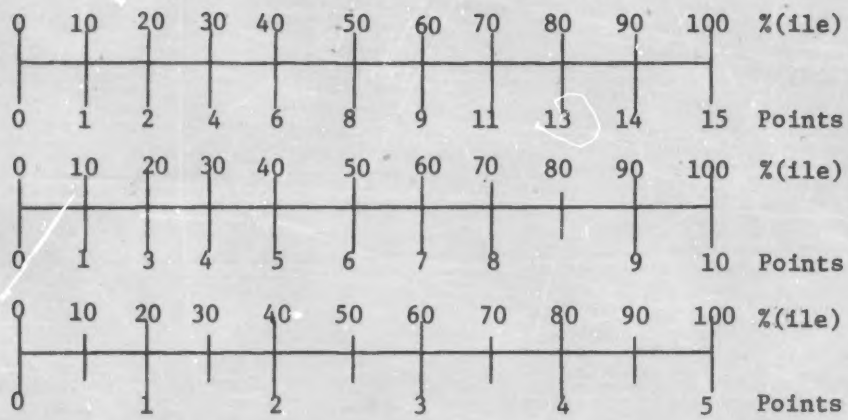
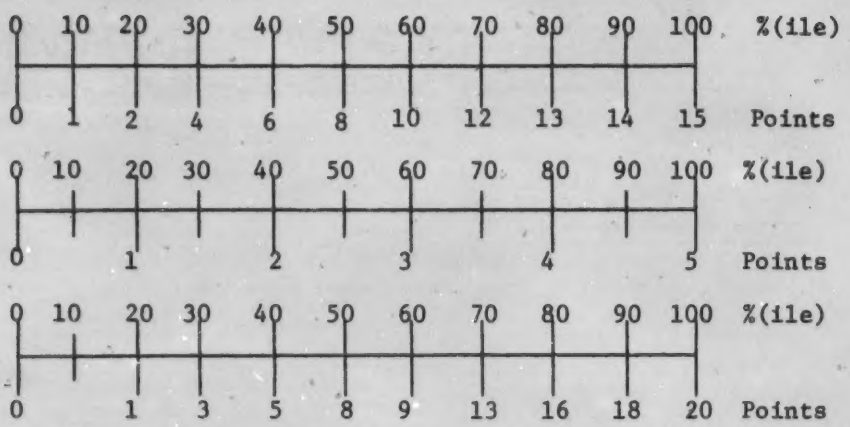


TABLE 5.1 (Continued)

EXAMPLES OF ASSESSMENT SCALES

SPATIAL RELATIONSHIP



SPELLING

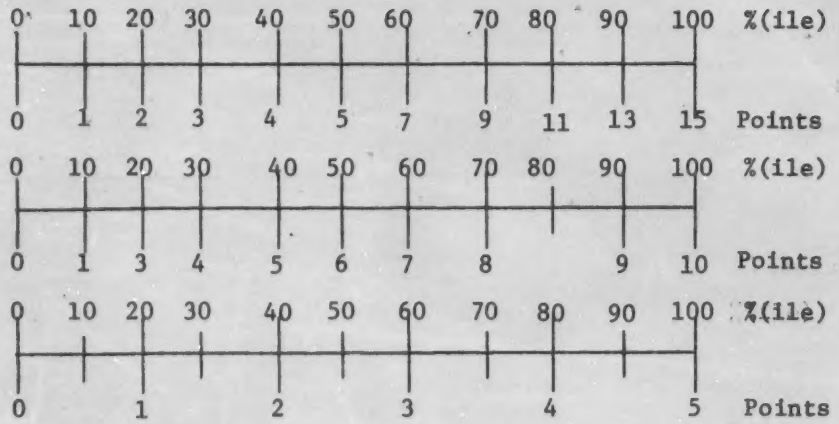
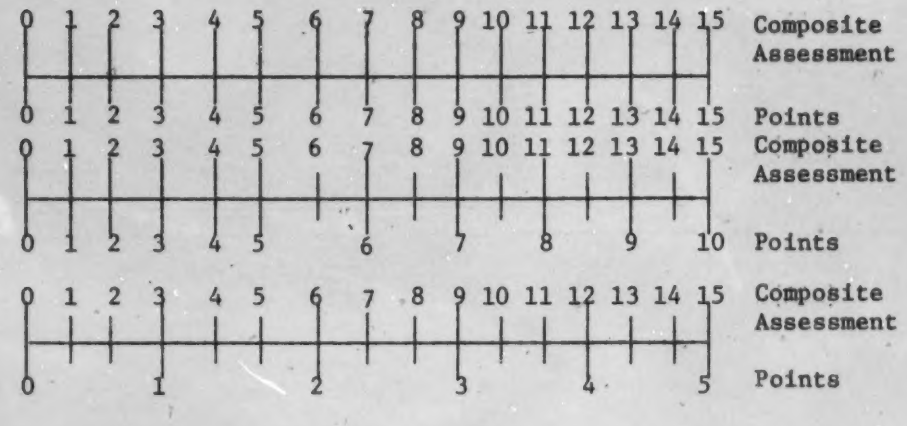


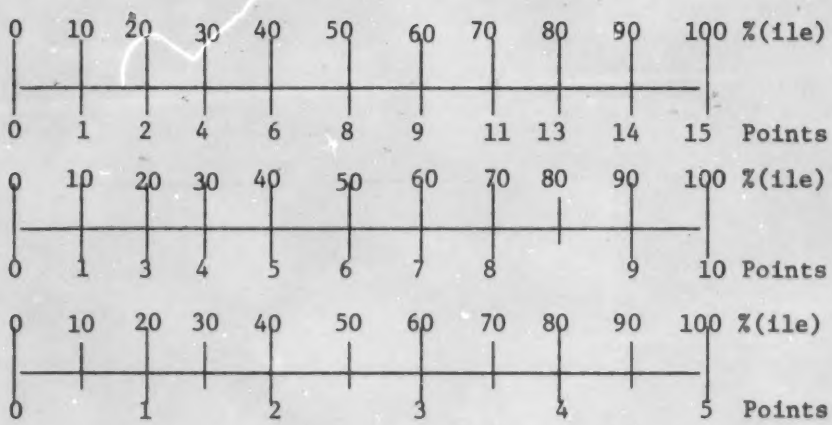
TABLE 5.1 (Continued)

EXAMPLES OF ASSESSMENT SCALES

TEACHER RECOMMENDATION



VERBAL REASONING



The Rating Scale

In developing the rating system for Student Selection Guides, it will be noted that for each of the 50 vocational programs there are from seven to ten distinct criteria established (Table 4.1). The total of the combined criteria rating points should be 100 points for each program. Each of the criteria, as illustrated in Table 5.1, has a possible rating of from five to 20 points. The maximum number of points assigned to each criteria, or its weight, is to be established by the Vocational Director, the Vocational Counselor and the teacher(s) of the specific program and approved by the Selection Committee. While the criteria have been verified for all 50 programs, each vocational center may vary the weight of each criterion for any one program, as shown in the following example of Vocational Centers A and B on their Student Selection Guides for Agricultural Mechanics:

TABLE 5.2

EXAMPLE: POINT VARIATIONS ON A PROGRAM RATING SCALE

Automotive Mechanics Selection Criteria	Maximum Points per Criterion	
	Vocational Center A	Vocational Center B
Abstract Reasoning	10	5
Attendance	10	5
Counselor Recommendation	10	10
Grade Point Average	10	10
Manual Dexterity	10	10
Mechanical Reasoning	10	15
Numerical Ability	10	10
Program Interest	10	15
Reading Comprehension	10	10
Teacher Recommendation	10	10
Total Possible Points	100	100

Filling In the Student Selection Guide

The feeder school guidance counselor will be responsible for completion of the Student Selection Guides (as indicated previously, clerical help may be required.) While the forms for each program can be printed at either the feeder high school or the vocational center, it is preferable that this be a vocational center responsibility so that the counselor can be confident that exactly the same form is being used by all feeder schools in the service area. Moreover, it is a lot less work for the counselor.

The counselor retrieves or interprets the data from the testing programs, etc., and records it on the Student Selection Guide. If tested measurement scores are not available for any of the aptitude criteria, such as "mechanical aptitude," it is the counselor's responsibility to obtain an evaluation of the student in relation to that criterion from a teacher who has had opportunity to observe the student. Industrial arts teachers would be such a source.

Areas that cannot be recorded from test scores are: grade point average, attendance, program interest, teacher recommendations and counselor evaluation. Attendance and grade point average can be obtained from the high school office.

Program interest assessment and rating will be evaluated by the counselor from several sources. The Student Career Profile (described in the booklet Student Recruitment for Vocational Education) is a self-perceived rating of achievement, interest, hands-on experiences, self concept and tentative career choices as recorded in the 7th, 8th, 9th and 10th grades. A Vocational Interest Survey is also a self-reported indicator, completed by the student after on-site experience, such as visitation or "shadowing" in several vocational programs, or after a slide/film presentation by the vocational counselor at the feeder high school. And, last but

not least, the interests expressed by the student during the interview or interviews will be a strong determinant of the Program Interest assessment and rating recorded by the counselor.

Teacher Recommendation forms (Figure 5.2), printed either by the vocational center or the high school, are distributed and collected by the counselor. Each applicant will need a recommendation from at least three teachers: one teacher of a basic academic course (e.g., math, English or science), preferably related to the skills required in the vocational or technical program desired; one teacher of a pre-vocational or practical arts course; and one teacher selected by the applicant. The Teacher Recommendation form gives the teacher the opportunity to rate the student on attitude, responsibility and neatness. The three (or more) teacher rating scores will be totalled individually and collectively by the counselor to derive the Teacher Recommendation composite assessment score and rating.

The feeder school counselor is responsible for using professional judgment in evaluating a number of criteria and information bases to derive a Counselor Evaluation assessment and rating. Since ratings should be based on documentation, the counselor will make notations during interviews with students, and their parents, during which the student's career goals will be discussed in reference to preparation required, where and when to prepare, and the student's interests, aptitudes and achievements. The interviews should give the parties the opportunity to review and analyze these items in light of: grade point average; grades in subjects related to jobs in the area of career interest and to desired vocational programs (degrees of difficulty and student attainment and possible extraneous influences on the recorded grades should be considered); aptitude, achievement, or interest test scores; and attendance record. Since the student's assignment to a vocational or technical program should be as self-directive as possible, other items to be reviewed with the

Figure 5.2

MOUNTAIN STATE VOCATIONAL-TECHNICAL SCHOOL

TEACHER'S RECOMMENDATION

For each candidate to Mountain State Vocational-Technical School, this form must be completed by at least three teachers: one of a basic academic course (math, English, or science); one of a prevocational or practical arts course; and one teacher selected by the applicant.

Student's Name_____ Teacher's Name_____

School_____ School_____

Classroom Contact with Student:

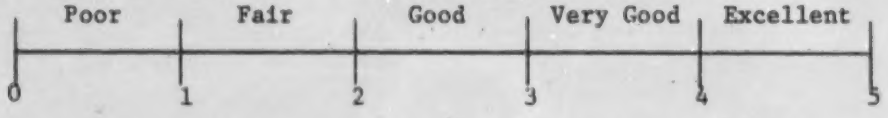
_____

(Subject Area) (Grade Level)

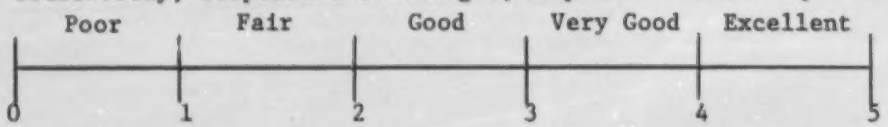
Date_____

Please check the following descriptions as they relate to your classroom experience with the student. We want your opinion of the student reduced to a numerical equivalent. Circle the MARK on each scale which best reflects your opinion. The combined teachers' ratings will become a part of an overall numerical rating, which includes other criteria. Your evaluation is very important.

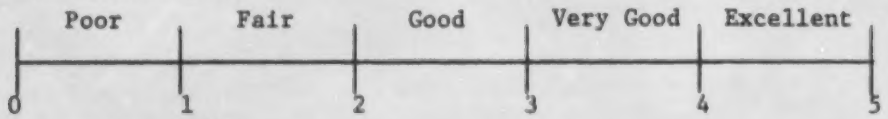
ATTITUDE — Shows positive overall feelings toward school, teachers, and peers; ability to work well with others; cooperative and friendly; can take orders as well as give them; good self-concept; self-disciplined.



RESPONSIBILITY — Willing to accept duties and responsibilities; follows directions; assumes the initiative when necessary; completes assignments; trustworthy; responsive to changes; requires minimal supervision.



NEATNESS — Strives for precision, accuracy, and quality in the performance of tasks; follows assignments or guidelines carefully and in an orderly manner; works to acceptable standards; shows pride in accomplishments.



TOTAL POINTS_____
(To be totaled by Counselor)

student are the Student Career Profile, the Vocational Interest Survey and any materials or information which will help the student to make an appropriate decision, such as use of the "Interpretative Youth Handbook" which provides guidance to evaluating the "Student Report" of subject interest rating, school plans, and career plans from the State-County Testing Program. If the GATB is administered, an analysis of the student's total score in relation to the Dictionary of Occupational Titles and the Occupational Outlook Handbook is available through the West Virginia State Department of Education's GATB scoring service.

The counselor's evaluation will also be considerate of professional evaluation of the student in relation to the outlook for success in the desired program, as adjudged by those familiar with any special circumstances. The Special Education Liaison Person, the High School Principal, a physician or the parents might provide input. The counselor's composite assessment (do not recommend, recommend or highly recommend) and rating scores (points) should be entered on the Student Selection Guide after all factors related to the student's potential for completing the vocational program, or portions of the program which would avail him of a marketable skill, have been taken into account.

Selection of Students

Before new students can be chosen for admission to any program it is necessary to determine how many second-year students will be returning for the next year. These students submit an application similar to that of beginning students, the major difference being that the center's Vocational Counselor will sign the recommendation form rather than the feeder school counselor. (Applications of those second-year special needs students from transitional programs who are to be mainstreamed into regular vocational programs must also be signed by the person responsible for the IEP's.) This step is necessary in order to determine the number of available spaces for new students.

The ideal situation is to be able to place the most appropriate student in the most appropriate vocational or technical program. But realistically, no matter how valid the Student Selection Guide and selection procedure, there are other factors that enter into student selection and placement. One of these is the quota system, which may have to be less rigid. Feeder schools may have to "give and take" in reference to the number of students who may be applying for certain programs rather than specifically allotting a given number of students to each particular program. A second factor that has recently come into focus is the Office of Civil Rights (OCR) guidelines (Federal Register, March, 1979), as cited in Chapter 6, concerning protected groups (race, sex, handicap and national origin).

First-Round Selection

The feeder school counselor will tabulate the scores of the Student Selection Guides and place the total scores in rank order for each program, with numbers assigned to the students (no names). This tally and all Student Selection Guides and applications are sent to the Vocational Director.

The Selection Committee is divided into two or more groups when it meets to select students so that more time may be spent on each student and program. This requires communication and total cooperation between the groups, especially when programs are over-subscribed. Feeder school counselors submit a rank ordering of students per program. Since the quota system becomes a factor, the Selection Committee will then review the rank order of the students by program by school. Students with the highest rank will be accepted, provided the proportion of the protected groups that are selected is approximately equal to the proportion of protected groups in the service area. (Chapter 6 describes a formula for this determination.) Students not accepted will be alternates to the program or they have the option of making application to a second-choice program.

Schools currently sending only a small number of applications to vocational programs that are not over-subscribed may not be a problem. Eventually, however, recruitment activities (particularly in reference to nontraditional work roles) and economic factors are expected to yield increased desire for enrollment in vocational programs. As students compete for assignment, the problem of placing them in the most appropriate vocational setting becomes more acute. It is recognized that the vocational center has a limited capacity that must take into account the quota system--by high school or by program, and by protected group. The Selection Committee's responsibility is to see that there is a balance of applicants selected, in accordance with the OCR guidelines; i.e., that a balance of members of protected groups is achieved within compliance guidelines.

Second-Round Selection

If all openings are not filled after the first round of the selection procedure, taking into account the quota system by high school and/or program and anti-discrimination guidelines, it is the responsibility of the feeder school counselor to contact non-accepted applicants to conduct another interview. During this recounseling interview, the counselor and student should explore the possibility of an application to another program, in which openings remain. The counselor then completes a Student Selection Guide for the student's second-choice program and the student completes an application to that program. These are forwarded to the Vocational Director, who compiles a rank-order composite of all students making second-round application. The Selection Committee must meet again to consider these applications. The high schools may, at this time, be willing to show some flexibility in the quotas, but OCR guidelines must still figure in student selection.

If openings remain after the first and second rounds, admission to these programs is at the discretion of the Vocational Director and the Selection Committee with use of the Student Selection Guides. Students transferring into the service area from other vocational programs may be admitted at any time during the year.

CHAPTER 6

PROCEDURES TO ASSURE

SELECTED STUDENTS ARE REPRESENTATIVE OF SENDING SCHOOLS

Introduction. The following instructions are to be used to select from a group of students who are eligible to attend a vocational center that serves a number of sending schools. Controls are placed on the selection to assure that the students selected are representative of all eligible students with regard to the following criteria:

1. The number of students who are eligible to attend the center from each school;
2. The number of males and females at each sending school;
3. The number of minority group students at each sending school; and
4. The number of handicapped students at each sending school.

The controls used to assure representativeness consist of dividing the population from all sending schools into a number of mutually exclusive groups (strata) and selecting within each of these groups. The number to be selected from each of the groups is determined by the proportion of the total number of students in each group. The steps for carrying out the selection are described below.

Procedure

1. Determine how the criteria for selection are to be defined. Sex and minority group membership should present no problems. This information should be available in the students' permanent files. Handicapped status may be a problem. A diagnosis of a handicapping condition from a recognized professional is the strongest evidence. How a handicapped student is identified may vary across schools so a uniform definition should be used in all sending schools.

2. Set up a table, such as the example shown as Table 6.1. Tally the number of students who fall in each cell of the table. Note that there are separate categories for minority groups and handicapped. Students who are both members of a minority group and handicapped represent a separate category. All students who do not fall into one of the specified sampling groups are counted in the "other" category.
3. Tally the grand total for all cells in the table.
4. Determine the percentages in each cell. A number of different procedures can be followed. In the example given, percentages are calculated for each column separately. It is also possible to calculate each cell as a percent of the grand total.
5. Determine how many students, in total, are to be selected from the number eligible. In the example this total is arbitrarily set at 400. In actual practice it is determined by the number of students a vocational facility can accommodate.
6. Calculate each school's allocation of the total to be selected. In the example, this is calculated by determining the percentage that males and females in each school are of the grand total (the row labeled "% Grand Total"). These percentages are then multiplied by 400 to give the male and female allocation in each school.
7. Determine the number to be selected in each cell by multiplying the percent columns by the allocation for each column. For example, in School 1, minority (only) male is 5% and the allocation of males to School 1 is 58 (.05 times 58 = 3). Remember, a percentage must be converted to a proportion (5% = .05; 25% = .25, etc.).
8. The multiplication in step 7 yielded the number in each cell that should be selected from the total eligible. In the example in School 1, step 7 yielded 3 minority males and females from among the 16 minority males and

14 minority females who are eligible. The procedure used to make the actual selection should be validated and shown to be related to performance in the program. If validated measures are not available, random selection would be acceptable.

NOTE: The procedures described above will guarantee complete compliance with the existing civil rights regulations. In practice, such complete compliance will be very difficult to achieve. If the students selected reflect the overall characteristics of the eligible students (the last column in the table), a school would probably be found to be in compliance.

EXAMPLE:

School 1 Enrollment 600 (28.0% of Grand Total)
Males 310 Females 290
Minority 5% (30)
Handicapped 10% (60)
Minority and Handicapped 2% (12)

School 2 Enrollment 900 (42.1% of Grand Total)
Males 440 Females 460
Minority 30% (270)
Handicapped 5% (45)
Minority and Handicapped 5% (45)

School 3 Enrollment 240 (11.2% of Grand Total)
Males 115 Females 125
Minority 2% (5)
Handicapped 3% (7)
Minority and Handicapped 0% (0)

School 4 Enrollment 400 (18.7% of Grand Total)
Males 210 Females 190
Minority 10% (40)
Handicapped 8% (32)
Minority and Handicapped 4% (16)

Grand Total Enrollment 2140

Number to be Selected 400

TABLE 6.1

EXAMPLE: CALCULATIONS TO ASSURE
REPRESENTATIVENESS OF SELECTED STUDENTS

Strata	School 1						School 2						School 3						School 4						All Schools	
	Enrollment		Percent		Allocation		Enrollment		Percent		Allocation		Enrollment		Percent		Allocation		Enrollment		Percent		Allocation			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	N	%
Minority (only)	16	14	5	5	3	3	130	140	30	30	25	26	3	2	3	2	1	1	17	23	8	12	3	4	345	16
Handicapped (only)	35	25	11	9	6	5	20	25	5	5	4	4	4	3	3	2	1	1	18	14	9	7	4	3	144	6
Minority and Handicapped	7	5	2	2	1	1	25	20	6	4	5	3	-	-	-	-	-	-	10	6	5	3	2	1	73	3
Other	252	246	81	85	47	46	265	275	60	60	49	52	108	120	94	96	21	22	165	147	79	77	31	28	1578	74
Total	310	290	99[a]	101	57[b]	55	440	460	101	99	83	85	115	125	100	100	23	24	210	190	101	99	40	36	2140	99
% Grand Total	14.5	13.6					20.6	21.5					5.4	5.8					9.8	8.9						
Allocation					58	54					82	86					23	23					39	36	400	

[a]Total may vary from 100% due to rounding
[b]Total may vary slightly from allocation due to rounding.

Access and Admission of Students to Vocational Education Programs. Effective March 15, 1979, final guidelines for vocational education programs entitled "Guidelines for Eliminating Discrimination and Denial of Services on the Basis of Race, Color, National Origin, Sex, and Handicap" explain the civil rights responsibilities of recipients of Federal funds offering vocational education programs. Excerpts from Federal Register, Vol. 44, No. 56, March 21, 1979. state:

ACCESS AND ADMISSION OF STUDENTS TO VOCATIONAL EDUCATION PROGRAMS

Recipient Responsibilities

Criteria controlling student eligibility for admission to vocational education schools, facilities and programs may not unlawfully discriminate on the basis of race, color, national origin, sex, or handicap. A recipient may not develop, impose, maintain, approve, or implement such discriminatory admissions criteria.

Eligibility for Admission to Secondary Vocational Education Centers Based on Numerical Limits Imposed on Sending Schools

A recipient may not adopt or maintain a system for admission to a secondary vocational education center or program that limits admission to a fixed number of students from each sending school included in the center's service area if such a system disproportionately excludes students from the center on the basis of race, sex, national origin or handicap. (Example: Assume 25 percent of a school district's high school students are black and that most of those black students are enrolled in one high school; the white students, 75 percent of the district's total enrollment, are generally enrolled in the five remaining high schools. This paragraph prohibits a system of admission to the secondary vocational education center that limits eligibility to a fixed and equal number of students from each of the district's six high schools.)

Eligibility Based on Evaluation of Each Applicant Under Admissions Criteria

Recipients may not judge candidates for admission to vocational education programs on the basis of criteria that have the effect of disproportionately excluding persons of a particular race, color, national origin, sex, or handicap. However, if a recipient can demonstrate that such criteria have been validated as essential to participation in a given program and that alternative equally valid criteria that do not have such a disproportionate adverse effect are unavailable, the criteria will be judged nondiscriminatory. Examples of admissions criteria that must meet this test

are past academic performance, record of disciplinary infractions, counselors' approval, teachers' recommendations, interest inventories, high school diplomas and standardized tests, such as the Test of Adult Basic Education (TABE).

An introductory, preliminary, or exploratory course may not be established as a prerequisite for admission to a program unless the course has been and is available without regard to race, color, national origin, sex, and handicap. However, a course that was formerly only available on a discriminatory basis may be made a prerequisite for admission to a program if the recipient can demonstrate that: (a) the course is essential to participation in the program; and (b) the course is presently available to those seeking enrollment for the first time and to those formerly excluded.

Students in Need of Supportive Services

In the West Virginia and Nationwide survey of vocational and feeder schools, the question was asked, "How do you adjust the normal selection criteria to meet the needs of the handicapped?" Of the four most popular responses (no adjustment necessary, student interest, IEP's, and counselor recommendation), it was most frequently indicated, by far, that no adjustment was necessary. It appears then, that there are two possible avenues for inducting the handicapped into a vocational setting.

Depending on the handicap, some students can most likely move into a vocational setting with very little difficulty. In placing a handicapped student, under the regular selection procedure, the student's indication of program interest, the IEP and the counselor recommendation are very important. The vocational counselor must work closely with the feeder school counselor in evaluating the Student Selection Guide and other pertinent information in order to recommend to the Selection Committee the most appropriate vocational setting for the student.

[While vocational instructors can adapt to teaching certain types of handicapped with very little adjustment, they must be inserviced on how to accept and make necessary program and/or equipment adjustments

for the handicapped as well as how to maintain communications with other disciplines to help students receive supportive services when needed. This is just as important as helping the student make the adjustment to a new setting.]

Section IV of the March, 1979, Office of Civil Rights guidelines delineates responsibilities for providing vocational education for the handicapped:

> Equal Access for Handicapped Students
>
> Recipients may not deny handicapped students access to vocational education programs or courses because of architectural or equipment barriers, or because of the need for related aids and services or auxiliary aids. If necessary, recipients must: (1) modify instructional equipment; (2) modify or adapt the manner in which the courses are offered; (3) house the program in facilities that are readily accessible to mobility impaired students or alter facilities to make them readily accessible to mobility impaired students; and (4) provide auxiliary aids that effectively make lectures and necessary materials available to postsecondary handicapped students; (5) provide related aids or services that assure secondary students an appropriate education.
>
> Academic requirements that the recipient can demonstrate are essential to a program of instruction or to any directly related licensing requirement will not be regarded as discriminatory. However, where possible, a recipient must adjust those requirements to the needs of individual handicapped students.
>
> Access to vocational programs or courses may not be denied handicapped students on the ground that employment opportunities in any occupation or profession may be more limited for handicapped persons than for non-handicapped persons.

To fulfill the legal and moral mandates of providing occupational preparation for the handicapped, a second type of vocational placement for special needs students is a transitional program in which the handicapped student might be brought into the vocational setting as early as the ninth or tenth grade. A clustering-phasing program provides a bridge for students who are not prepared for initial entry into a regular vocational program. They are phased into regular programs through occupational clusters in which they may specialize in one or more career areas. As they advance from the transitional cluster(s) into a regular vocational

program, their curriculum is designed by the program instructor in conjunction with the rehabilitation counselor, who is a community services resource person, and the vocational resource person. Students no longer in need of supportive services are then fully integrated into the responsibility of the regular vocational teacher.

[Career clusters are taught by vocationally certified teachers, assisted by teacher aides as required by the needs of the students. A remedial teacher, certified in special education, provides instruction and/or reinforcement in related math, communications skills and other skills needed by the students, as identified through the feeder school and/or by on-site diagnostic appraisal. The feeder school's Special Education Liaison Person and a vocational resource person are available to vocational teachers to provide advice and assistance in modifying vocational curriculum materials and equipment which will aid in the successful mainstreaming of handicapped or academically disadvantaged students. The vocational resource person, certified in special education and vocational education, coordinates school-based activities with those of the fourth member of the clustering-phasing program, the rehabilitation counselor. This counselor works along with the job placement coordinator and the Bureau of Employment Security to place cluster students into the world of work.]

CHAPTER 7

INTRODUCTION TO CAREER CLUSTER PROFILES

This section contains profile information of careers related to the 50 West Virginia vocational programs with the highest enrollments in 1977-78. Each of the 50 programs is identified by USOE code and title. Career clusters for each of the programs were drawn from the Dictionary of Occupational Titles (4th Ed., U.S. Department of Labor), representing typical occupations in which graduates of these vocational programs might be employed. Their representativeness was validated with the Vocational Program Supervisors of the West Virginia Bureau of Vocational, Technical and Adult Education.

Each identified occupation was analyzed according to the People-Data-Things numbers within the DOT code. These are the middle three digits of each nine-digit code. Counselors, teachers, and students should pay close attention to these classifiers in order to match student preferences and aptitudes with the degree of performance indicated for each occupation. The relative involvement with People-Data-Things is shown in an explanatory section of the profile: the least complex requirement is at the bottom of each column, and the most complex requirement is at the top of the column, represented by a "0" code.

On the second page, for each program, are "Suggested Work Factors." These are work factors generally involved in the performance of tasks within the program cluster. "Additional Work Factors" should be completed by the vocational teacher and/or the placement coordinator according to local employment opportunities.

Also on the second page are spaces in which the vocational teacher and/or placement coordinator can update the career cluster profile according to occupations for which they are aware of need in their locality as well as Statewide.

Program Title: AGRICULTURAL PRODUCTION

USOE Code: 01.0100

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 421 - GENERAL FARMING OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
421.161-010	FARMER, GENERAL	
421.683-010	FARMWORKER, GENERAL I	Hired Worker
421.687-010	FARMWORKER, GENERAL II	Chore Tender; Farm Laborer
402.161-010	FARMER, VEGETABLE	Garden Farmer; Vegetable Grower
409.683-010	FARM MACHINE OPERATOR	
410.161-018	LIVESTOCK RANCHER	Livestock Breeder; Livestock Farmer
410.664-010	FARMWORKER, LIVESTOCK	Laborer, Livestock; Ranch Hand, Livestock
410.674-022	STABLE ASSISTANT	Barnworker, Groom
410.684-010	FARMWORKER, DAIRY	Laborer, Dairy Farm
411.161-018	POULTRY FARMER	
411.584-010	FARMWORKER, POULTRY	Helper, Chicken Farm; Poultry Helper

DOT Worker Trait Group Arrangement*:

.161 - Coordinating; Speaking - signalling; Precision working
.584 - Copying; Taking instructions - helping; Manipulating
.683 - Comparing; Taking instructions - helping; Driving - operating
.687 - Comparing, Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to date, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Agricultural Production
USOE 01.0100

SUGGESTED WORK FACTORS:

Improvement of work performance with repetition
Measuring ability
Numerical ability
Use of hand tools
Manual dexterity
Standing tolerance
Lifting tolerance
Eye/hand coordination
Judgment
Form perception
Color perception

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: AGRICULTURAL MECHANICS

USOE Code: 01.0300

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 624 - FARM MECHANICS AND REPAIRERS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
624.281-010	FARM EQUIPMENT MECHANIC I	Farm Mechanic
624.381-010	ASSEMBLY REPAIRER	
624.381-014	FARM EQUIPMENT MECHANIC II	Farm Mechanic, field equipment, Maintenance Mechanic, farm
624.381-018	FARM MACHINERY SET-UP MECHANIC	
624.684-010	GREASER	
625.281-030	SMALL ENGINE MECHANIC	
801.684-022	PROGRESSIVE ASSEMBLER AND FITTER	Assembler, Lawn-and-Garden Machinery; Assembler, Tractor; Case Assembler; Main-line Assembler

DOT Worker Trait Group Arrangement*;

.281 - Analyzing, Taking instructions - helping; Precision working
.381 - Compiling, Taking instructions - helping; Precision working
.684 - Comparing, Taking instructions - helping; Manipulating

*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Agricultural Mechanics
USOE 01.0300

SUGGESTED WORK FACTORS:

Use of hand tools
Medium finger dexterity
Manual dexterity
Safety consciousness
Form perception
Care in handling
Eye/hand coordination
Measuring ability
Improvement of work performance with repetition
Standing tolerance
Judgment

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: GROUNDS MAINTENANCE

USOE Code: 01.9905

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 406 - GARDENING AND GROUNDSKEEPING OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
406.381-010	GARDENER, SPECIAL EFFECTS AND INSTRUCTION MODELS	
406.683-010	GREENSKEEPER II	Laborer, Golf course
406.684-010	CEMETERY WORKER	
406.684-014	GROUNDSKEEPER, INDUSTRIAL COMMERCIAL	Caretaker, grounds; Gardener; Yard laborer
406.687-010	GROUNDSKEEPER, PARKS AND GROUNDS	Park worker
405.687-014	HORTICULTURAL WORKER II	
408.161-010	LANDSCAPE GARDENER	Landscaper
408.664-010	TREE TRIMMER	Tree trimmer, Line clearances; Tree-trimming line technician
408.684-010	LAWN-SERVICE WORKER	
408.684-018	TREE PRUNER	

DOT Worker Trait Group Arrangement*:

.161 - Coordinating, Speaking-Signalling, Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.683 - Comparing, Taking instructions - helping; Driving - operating
.684 - Comparing, Taking instructions - helping; Manipulating
.687 - Comparing, Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Grounds Maintenance
USOE 01.9905

SUGGESTED WORK FACTORS:

Improvement of work performance with repetition
Use of hand tools
Manual dexterity
Spatial/size discrimination
Bending tolerance
Lifting tolerance
Form perception
Measuring ability
Neatness
Standing tolerance
Judgment
Safety consciousness

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: ACCOUNTING AND COMPUTING OCCUPATIONS

USOE Code: 14.0100

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 210 - BOOKKEEPERS AND BOOKKEEPING MACHINE OPERATORS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
210.367-010	ACCOUNT INFORMATION CLERK	
210.382-010	AUDIT CLERK	
210.382-014	BOOKKEEPER I	Full-charge Bookkeeper; General Bookkeeper
210.382-022	BOOKKEEPING MACHINE OPERATOR I	Account Clerk; Bookkeeper, machine; Posting Machine Operator; Recording Clerk
210.382-046	GENERAL LEDGER BOOKKEEPER	
214.362-026	INVOICE CONTROL CLERK	Accounts Payable Clerk; Purchase Order Checker
216.387-010	CHECK PROCESSING CLERK	Customer Account Clerk; Payment Processing Clerk
216.587-014	POSTING CLERK	Entry Clerk; Transcribing Clerk

DOT Worker Trait Group Arrangement*:

.362 - Compiling; Speaking - signalling; Operating - controlling
.367 - Compiling; Speaking - signalling; Handling
.382 - Compiling; Taking instructions - helping; Operating - controlling
.387 - Compiling; Taking instructions - helping; Handling
.587 - Copying; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to date, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Accounting and Computing Occupations
USOE 14.0100

SUGGESTED WORK FACTORS:

- Conscientious attitude toward work
- Improvement of work performance with repetition
- Sitting tolerance
- Manual dexterity
- Numerical ability
- Neatness
- Eye-hand coordination
- Finger dexterity
- Accuracy
- Clerical perception

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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UUC 87

Program Title: FILING, OFFICE MACHINES & GENERAL OFFICE CLERICAL

USOE Code: 14.0300

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 20 - STENOGRAPHY, TYPING, FILING AND RELATED OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
203.582-058	TRANSCRIBING MACHINE OPERATOR	
203.582-066	TYPIST	
206.362-010	FILE CLERK I	
207.682-010	DUPLICATING MACHINE OPERATOR I	
215.482-010	PAYROLL CLERK	
219.362-010	ADMINISTRATIVE CLERK	General Office Clerk
219.367-014	INSURANCE CLERK II	Clerk, Insurance-Real Estate Loans
219.362-034	INSURANCE CLERK I	
235.662-022	TELEPHONE OPERATOR	Control Board Operator; PBX Operator; Private Branch Exchange Operator; Switchboard Operator; Telephone-Switchboard Operator
237.367-038	RECEPTIONIST	Reception Clerk
238.362-014	RESERVATION CLERK	Clerk, Travel Reservations; Travel Clerk

DOT Worker Trait Group Arrangement*:

.362 - Compiling; Speaking - signalling; Operating - controlling
.367 - Compiling; Speaking - signalling; Handling
.482 - Computing; Taking instructions - helping; Operating - controlling
.582 - Copying; Taking instructions - helping; Operating - controlling
.662 - Comparing; Speaking - signalling; Operating - controlling
.682 - Comparing; Taking instructions - helping; Operating - controlling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Filing, Office Machines and General Office Clerical
USOE 14.0300

SUGGESTED WORK FACTORS:

Improvement of work performance with repetition
Neatness
Fine finger dexterity
Improvement of work performance
Conscientious attitude towards work
Use of hand tools
Work pace
Sitting tolerance
Manual dexterity
Measuring ability
Lifting tolerance (light loads)
Bending tolerance

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: STENOGRAPHIC, SECRETARIAL & RELATED OCCUPATIONS

USOE Code: 14.0700

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 20 - STENOGRAPHY, TYPING, FILING AND RELATED OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
201.162-010	SOCIAL SECRETARY	
201.362-010	LEGAL SECRETARY	
201.362-014	MEDICAL SECRETARY	
201.362-020	SECRETARY	Secretarial Stenographer
202.362-010	SHORTHAND REPORTER	Court Reporter; Law Reporter
202.362-014	STENOGRAPHER	Clerk-Stenographer
203.582-034	MAGNETIC TAPE-TYPEWRITER OPERATOR	
209.562-010	CLERK, GENERAL	Office Clerk, Routine
169.167-014	ADMINISTRATIVE SECRETARY	Executive Secretary
219.362-010	ADMINISTRATIVE CLERK	Clerk, General Office
243.362-010	COURT CLERK	

DOT Worker Trait Group Arrangement*:

.162 - Coordinating; Speaking - signalling; Operating - controlling
.167 - Coordinating; Speaking - signalling; Handling
.362 - Compiling; Speaking - signalling; Operating - controlling
.562 - Copying; Speaking - signalling; Operating - controlling
.582 - Copying; Taking instructions - helping; Operating - controlling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Stenographic, Secretarial and Related Occupations
USOE 14.0700

SUGGESTED WORK FACTORS:

Work pace
Use of hand tools
Sitting tolerance
Judgment
Improvement of work performance with repetition
Fine finger dexterity
Eye/hand coordination
Neatness
Dependability
Craftsmanship

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: DISTRIBUTIVE EDUCATION - ADVERTISING SERVICES

USOE Code: 4.0100

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 254 - SALES OCCUPATIONS, PRINTING AND ADVERTISING

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
254.251-010	SALES REPRESENTATIVE, GRAPHIC ART	
254.257-010	SALES REPRESENTATIVE, SIGNS AND DISPLAY	
254.257-014	SALES REPRESENTATIVE, ADVERTISING	Advertising Solicitor
131.067-014	COPY WRITER	
142.051-010	DISPLAY DESIGNER	Display and Banner Designer; Flag Decorator & Designer
216.382-066	ADVERTISING CLER	
247.387-010	ADVERTISING CLERK	
297.367-010	EXHIBIT DISPLAY REPRESENTATIVE	

DOT Worker Trait Group Arrangement*:

.051 - Synthesizing; Persuading; Manipulating
.067 - Synthesizing; Speaking - signalling; Handling
.251 - Analyzing; Persuading; Precision working
.257 - Analyzing; Persuading; Handling
.367 - Compiling; Speaking - signalling; Handling
.382 - Compiling; Taking instructions - helping; Operating - controlling
.387 - Compiling; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people, and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Distributive Education - Advertising Services
USOE 4.0100

SUGGESTED WORK FACTORS:

Manual dexterity
Form perception
Spatial/size discrimination
Neatness
Measuring ability
Color discrimination
Judgment

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: DISTRIBUTIVE EDUCATION - APPAREL AND ACCESSORIES

USOE Code: 4.0200

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 261 - SALES OCCUPATIONS, TEXTILE PRODUCTS, APPAREL, AND NOTIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
261.357-054	SALESPERSON, MEN'S FURNISHINGS	
261.357-066	SALESPERSON, WOMEN'S APPAREL AND ACCESSORIES	
185.157-010	FASHION COORDINATOR	Fashion Stylist
297.667-014	MODEL	Fashion Model, House Model
298.081.010	MERCHANDISE DISPLAYER	Decorator, Display Trimmer

DOT Worker Trait Group Arrangement *:

.081 - Synthesizing; Taking instructions - helping; Precision working
.157 - Coordinating; Persuading; Handling
.357 - Computing; Persuading; Handling
.667 - Comparing; Speaking - signalling; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people, and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Distributive Education - Apparel and Accessories
USOE 4.0200

SUGGESTED WORK FACTORS:

Color Discrimination
Form perception
Neatness
Standing tolerance
Care in handling

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: DISTRIBUTIVE EDUCATION - FOOD DISTRIBUTION

USOE Code: 4.0600

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 260 - SALES OCCUPATIONS, AGRICULTURAL AND FOOD PRODUCTS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
260.357-014	SALES REPRESENTATIVE, FOOD PRODUCTS	
211.462-014	CASHIER-CHECKER	Grocery Checker
290.477-018	SALES CLERK, FOOD	
292.353-010	DRIVER, SALES ROUTE	Delivery Route Truck Driver; Route Driver; Truck Driver, Sales Route
299.367-010	STOCK CLERK, SELF-SERVICE STORE	
920.687-014	BAGGER	Grocery Packer

DOT Worker Trait Group Arrangement*:

.353 - Compiling; Persuading; Driving - oeprating
.357 - Compiling; Persuading; Handling
.367 - Compiling; Speaking - signalling; Handling
.462 - Computing; Speaking - signalling; Operating - controlling
.467 - Computing; Speaking - signalling; Handling
.687 - Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people, and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Distribution Education - Food Distribution
USOE 4.0600

SUGGESTED WORK FACTORS:

Numerical ability
Standing tolerance
Care in handling
Improvement of work performance with repetition
Lifting tolerance
Measuring ability

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: DISTRIBUTIVE EDUCATION - FOOD SERVICE

USOE Code: 4.0700

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 311 - WAITERS/WAITRESSES, AND RELATED FOOD SERVICE OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
311.137-010	COUNTER SUPERVISOR	
311.137-022	WAITER/WAITRESS, HEAD	
311.477-014	COUNTER ATTENDENT, LUNCH-ROOM OR COFFEE SHOP	
311.477-026	WAITER/WAITRESS, FORMAL	
187.167-106	MANAGER, FOOD SERVICE	
211.582-010	FOOD TABULATOR, CAFETERIA	Food Checker, Cafeteria; Multi-Counter Operator
310.137-010	HOST/HOSTESS, RESTAURANT	Waiter/Waitress, Head

DOT Worker Trait Group Arrangement*:

.137 - Coordinating; Supervising; Handling
.167 - Coordinating; Speaking-signalling; Handling
.477 - Computing; Serving; Handling
.582 - Copying; Taking instructions - helping; Precision working

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people, and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Distributive Education - Food Service
USOE 4.0700

SUGGESTED WORK FACTORS:

Manual dexterity
Eye/hand coordination
Numerical ability
Care in handling
Frustration tolerance
Safety consciousness
Improvement of work performance with repetition
Standing tolerance
Neatness

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: DISTRIBUTIVE EDUCATION - GENERAL MERCHANDISE

USOE Code: 4.0800

This job sample fits into both the U. S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 279 SALES OCCUPATIONS, MISCELLANEOUS COMMODITIES, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
279.357-014	SALES REPRESENTATIVE, GENERAL MERCHANDISE	
279.357-046	SALESPERSON, FLYING SQUAD	Salesperson, Utility Staff
279.357-054	SALESPERSON, GENERAL MERCHANDISING	
270.357-034	SALESPERSON, HOUSEHOLD APPLIANCES	
273.357-030	SALESPERSON, AUTOMOBILE ACCESSORIES	
292.353.010	DRIVER, SALES ROUTE	
299.137-010	MANAGER DEPARTMENT	Department Supervisor, Floor Manager
299.467.010	LAYAWAY CLERK	Will-call Clerk

DOT Worker Trait Group Arrangement*:

.137 - Coordinating: Supervising: Handling
.353 - Compiling; Persuading; Driving - operating
.357 - Compiling; Persuading; Handling
.467 - Computing; Speaking - signalling; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people, and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Distributive Education - General Merchandise
USOE 4.0800

SUGGESTED WORK FACTORS:

Manual dexterity
Eye/hand coordination
Numerical ability
Measuring ability - ule or tape
Color discrimination
Form perception
Spatial/size discrimination
Care in handling
Standing tolerance
Lifting tolerance
Neatness

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: DISTRIBUTIVE EDUCATION - RETAIL TRADES, OTHER

USOE Code: 4.2000

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 29 - MISCELLANEOUS SALES OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
297.354-010	DEMONSTRATOR	
297.667-010	GUIDE, REAL ESTATE	
299.357-014	TELEPHONE SOLICITOR	Telephone Sales Representative
185.167-014	MANAGER, SELF-SERVICE GASOLINE STATION	
277.357-026	SALES REPRESENTATIVE, RECREATION AND SPORTING GOODS	

DOT Worker Trait Group Arrangement*:

.167 - Coordinating; Speaking - signalling; Handling
.354 - Compiling; Persuading; Manipulating
.357 - Compiling - Persuading; Handling
.667 - Comparing; Speaking - signalling; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people, and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Distributive Education - Retail Trades, Other
USOE 4.2000

SUGGESTED WORK FACTORS:

- Numerical ability
- Manual dexterity
- Safety consciousness
- Lifting tolerance
- Conscientious attitude towards work
- Neatness

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: DENTAL ASSISTING

USOE Code: 7.0101

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 079 - OCCUPATIONS IN MEDICINE AND HEALTH, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
079.371-010	DENTAL ASSISTANT	

DOT Worker Trait Group Arrangement*:

.371 - Synthesizing; Serving; Precision working

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Dental Assisting
USOE 7.0101

SUGGESTED WORK FACTORS:

Manual dexterity
Neatness
Eye/hand coordination
Judgment
Motor coordination
Fine finger dexterity
Use of hand tools
Work pace
Craftsmanship
Care in handling
Improvement of work performance with repetition
Conscientious attitude towards work

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: PRACTICAL VOCATIONAL NURSING

USOE Code: 7.0302

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: [illegible]9 - OCCUPATIONS IN MEDICINE AND HEALTH N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
079.374-014	LICENSED PRACTICAL NURSE	
354.374-010	PRACTICAL NURSE	
354.377-014	HOME ATTENDANT	Home Health Aide

DOT Worker Trait Group Arrangement*:

.374 - Compiling; Serving; Diverting
.377 - Compiling; Serving; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Practical Vocational Nursing
USOE 7.0302

SUGGESTED WORK FACTORS:

Manual dexterity
Judgment
Neatness
Eye/hand coordination
Manual dexterity
Use of hand tools
Numerical ability
Measuring ability
Care in handling
Frustration tolerance
Safety consciousness
Lifting tolerance
Conscientious attitude towards work

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: NURSING ASSISTANCE AID

USOE Code: 7.0303

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 355 - ATTENDANTS, HOSPITALS, MORGUES, AND RELATED HEALTH SERVICES

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
355.354-010	PHYSICAL THERAPY AIDE	Physical Therapy Attendant
355.377-010	OCCUPATIONAL THERAPY AIDE	
355.377-014	PSYCHIATRIC AIDE	Assistant Therapy Aide; Asylum Attendant; Charge Attendant; Psychiatric Attendant; Ward Attendant
355.674-010	CHILD CARE ATTENDANT, SCHOOL	
355.674-014	NURSE AIDE	Hospital Attendant; Nursing Assistant
355.674-018	ORDERLY	
354.377-014	HOME ATTENDANT	Home Health Aide

DOT Worker Trait Group Arrangement*:

.354 - Compiling; Persuading; Diverting
.377 - Compiling; Serving; Handling
.674 - Comparing; Serving; Diverting

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - Controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Nursing Assistance Aid
USOE 7.0303

SUGGESTED WORK FACTORS:

Manual dexterity
Neatness
Eye/hand coordination
Use of hand tools
Judgment
Measuring ability
Care in handling
Frustration tolerance
Safety consciousness
Standing tolerance
Lifting tolerance
Bending tolerance
Conscientious attitude towards work
Neatness

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: MEDICAL ASSISTANT (ASSISTANT IN PHYSICIAN'S OFFICE)

USOE Code: 7.0904

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 079 - OCCUPATIONS IN MEDICINE AND HEALTH, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
079.364-010	CHIROPRACTOR ASSISTANT	
079.367-010	MEDICAL ASSISTANT	
079.374-018	PODIATRIC ASSISTANT	

DOT Worker Trait Group Arrangement*:

.364 - Compiling; Speaking - signalling; Manipulating
.367 - Compiling; Speaking - signalling; Handling
.374 - Compiling; Serving; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Snythesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Medical Assistant (Assistant in Physicians Office)
USOE 7.0904

SUGGESTED WORK FACTORS:

Manual dexterity
Care in handling
Frustration tolerance
Safety consciousness
Standing tolerance
Lifting tolerance
Conscientious attitude towards work
Judgment
Neatness
Eye/hand coordination

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: CARE AND GUIDANCE OF CHILDREN

USOE Code: 9.0201

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 359 - MISCELLANEOUS PERSONAL OCCUPATIONS, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
359.677-010	ATTENDANT, CHILDREN'S INSTITUTION	Child-Care Attendant; Houseparent
359.677-018	NURSERY SCHOOL ATTENDANT	Child-Care Leader; Child Day Care Center Worker, Day Care Worker
359.677-026	PLAYROOM ATTENDANT	Kindergarten
301.677-010	CHILD MONITOR	Children's Nurse
309.677-010	COMPANION	
309-677-014	FOSTER PARENT	
355.674-010	CHILD CARE ATTENDANT, SCHOOL	

DOT Worker Trait Group Arrangement*:

.674 - Comparing; Serving; Manipulating
.677 - Comparing; Serving; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Care and Guidance of Children
USOE 9.0201

SUGGESTED WORK FACTORS:

Judgment
Manual dexterity
Frustration tolerance
Safety consciousness
Lifting tolerance
Bending tolerance
Conscientious attitude towards work

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: CLOTHING MANAGEMENT, PRODUCTION AND SERVICES

USOE Code: 9.0202

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 785 - TAILORS AND DRESSMAKERS

Related DOT Job Titles:

Dot Code	Job Title	Alternate Titles
785.261-010	ALTERATION TAILOR	
785.361-010	DRESSMAKER	
785.361-014	GARMENT FITTER	
346.361-010	WARDROBE SUPERVISOR	
346.370.010	CUSTOMER ASSISTANT	Wardrobe Custodian, Wardrobe Draper
346.674-010	DRESSER	
787.682-046	SEWING MACHINE OPERATOR	

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.361 - Compiling; Speaking - signalling; Precision working
.370 - Compiling; Serving; Setting up
.674 - Comparing; Serving; Manipulating
.682 - Comparing; Taking instructions - helping; Operating - controlling

*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiation	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Clothing Management, Production and Services
USOE 9.0202

SUGGESTED WORK FACTORS:

Measuring ability
Form perception
Spatial/size discrimination
Color discrimination
Use of hand tools
Neatness
Fine finger dexterity
Eye/hand coordination
Motor coordination
Numerical ability
Craftsmanship
Care in handling
Improvement of work performance with repetition
Judgment
Conscientious attitude towards work

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: FOOD MANAGEMENT, PRODUCTION AND SERVICES

USOE Code: 9.0203

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 313 CHEFS AND COOKS, HOTELS AND RESTAURANTS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
313.131-014	CHEF	Chief Cook; Kitchen Chef; Waiter; Waitress; Hostess; Bussing; Dishwashers
313.361-014	COOK	Restaurant Cook
313.381-010	BAKER	Bread Baker; Oven Tender
313.381-030	COOK, SCHOOL CAFETERIA	
187.167-106	MANAGER, FOOD SERVICES	
187.167-026	FOOD SERVICES DIRECTOR	Manager, School Lunch Program
355.677-010	FOOD SERVICE WORKER, HOSPITAL	Dietary Aide; Diet-Kitchen Aide; Tray Worker

DOT Worker Trait Group Arrangement*:

.131 - Coordinating; Supervising; Precision working
.167 - Coordinating; Speaking - signalling; Handling
.361 - Compiling; Speaking - signalling; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.677 - Comparing; Serving; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Food Management, Production and Services
USOE 9.0203

SUGGESTED WORK FACTORS:

- Neatness
- Manual dexterity
- Measuring ability
- Judgment
- Craftsmanship
- Safety consciousness
- Standing tolerance
- Conscientious attitude towards work

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: INSTITUTIONAL AND HOME MANAGEMENT AND SUPPORTING SERVICES

USOE Code: 9.0205

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U. S. Department of Labor DOT and the U. S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 321 - HOUSEKEEPERS, HOTELS AND INSTITUTIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
321.137-010	HOUSEKEEPER	Floor Housekeeper
321.137-014	INSPECTOR	
187.167-186	RESIDENCE SUPERVISION	Advisor; Chaperon; Cottage Parent; House Manager
195.367-014	MANAGEMENT AIDE	
301.137-010	HOME HOUSEKEEPER	Household Manager
301.687-014	DAY WORKER	
323.137-010	HOUSECLEANER SUPERVISOR	
323.687-010	HOSPITAL CLEANER	

DOT Worker Trait Group Arrangement*:

.137 - Coordinating; Supervising; Handling
.167 - Coordinating; Speaking - signalling; Handling
.367 - Compiling; Speaking - signalling; Handling
.687 - Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking Instructions - helping	

Institutional and Home Management and Supporting Services
USOE 9.0205

SUGGESTED WORK FACTORS:

Neatness
Manual dexterity
Use of hand tools
Measuring ability
Work pace
Care in handling
Frustration tolerance
Safety consciousness
Improvement of work performance with repetition
Standing tolerance
Lifting tolerance
Judgment
Conscientious attitude towards work

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: ELECTRONIC TECHNOLOGY

USOE Code: 15.0108

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 828 - OCCUPATIONS IN FABRICATION, INSTALLATION AND REPAIR OF ELECTRICAL AND ELECTRONICS PRODUCTS, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
828.261-010	ELECTRONIC-ORGAN TECHNICIAN	Electric Organ Technician
828.281-010	ELECTRONICS MECHANIC	Communication Technician; Electronics Equipment Mechanic; Electronics Specialist; Electronics System Mechanic; Electronics Technician
828.281-014	ELECTRONICS-MECHANIC APPRENTICE	Electronics-Technician Apprentice
828.281-022	RADIOACTIVITY-INSTRUMENT MAINTENANCE TECHNICIAN	Radioactivity Technician
828.381-010	EQUIPMENT INSTALLER	
828.381-014	PRECISION ASSEMBLER	
194.262-010	AUDIO OPERATOR	Audio Engineer-Audio Technician; Sound Engineer; Studio Engineer-Audio Control
194.381-010	TECHNICAL TESTING ENGINEER	Sound installation worker
194.382-010	SECTION-PLOTTER OPERATOR	Playback Operator

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.262 - Analyzing; Speaking - signalling; Operating - controlling
.281 - Analyzing; Taking instructions - helping; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.382 - Compiling; Taking instructions - helping; Operating - controlling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Electronic Technology
USOE 16.0108

SUGGESTED WORK FACTORS:

Fine finger dexterity
Numerical ability
Judgment
Craftsmanship
Manual dexterity
Safety consciousness
Use of hand tools
Measuring ability
Care in handling
Conscientious attitude towards work
Neatness

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: COMPUTER PROGRAMMER

USOE Code: 16.0401

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 020 - OCCUPATIONS IN MATHEMATICS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
020.162-014	PROGRAMMER, BUSINESS	
020.187-010	PROGRAMMER, INFORMATION SYSTEM	
020.187-014	PROGRAMMER, PROCESS CONTROL	
203.582-054	TERMINAL OPERATOR	Dictating Machine Transcriber; Dictating Machine Typist
213.362-010	COMPUTER OPERATOR	Console Operator
213.382-010	COMPUTER PERIPHERAL EQUIPMENT OPERATOR	Assistant Console Operator; Tape Handler
219.367-026	PROGRAMMER, DETAIL	Program Coder; Programmer Trainee
275.257-010	SALES REPRESENTATIVE, COMPUTERS AND EDP SYSTEMS	

DOT Worker Trait Group Arrangement*:

.162 - Coordinating; Speaking - signalling; Operating - Controlling
.187 - Coordinating; Taking instructions - helping; Handling
.362 - Compiling; Speaking - signalling; Operating - controlling
.367 - Compiling; Speaking - signalling; Handling
.382 - Compiling, Taking instructions - helping; Operating - controlling
.582 - Copying; Taking instructions - helping; Operating - controlling
.257 - Analyzing; Persuading; Handling

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Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Computer Programmer
USOE 16.0401

SUGGESTED WORK FACTORS:

Fine finger dexterity
Numerical ability
Manual dexterity
Eye/hand coordination
Care in handling
Improvement of work performance with repetition
Judgment
Neatness

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: AIR CONDITIONING (CLUSTER)

USOE Code: 17.0100

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 637 - UTILITIES SERVICE MECHANICS AND REPAIRERS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
637.261-010	AIR CONDITIONING INSTALLER - SERVICER WINDOW UNIT	
637.261-014	ENVIRONMENTAL CONTROL SYSTEM INSTALLER-SERVICER	Air Conditioning Mechanic; Heating and Air Conditioning Mechanic; Heating Mechanic
637.261-026	REFRIGERATION MECHANIC	
637.381-014	REFRIGERATION UNIT REPAIRER	
637.664-010	ENVIRONMENTAL CONTROL SYSTEM INSTALLER-SERVICE HELPER	Heating and Air Conditioning Mechanic Helper
637.687-010	AIR CONDITIONING INSTALLER-SERVICE HELPER, WINDOW UNIT	
637.687-014	REFRIGERATION-MECHANIC HELPER	
620.281-010	AIR CONDITIONING MECHNIC	Automobile-Refrigeration Mechanic
806.381-014	AIRCRAFT MECHANIC, HEAT AND VENT	Heating and ventilation-Installation Assembler

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.281 - Analyzing; Taking instructions - helping; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.664 - Comparing; Speaking - signalling; Manipulating
.687 - Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Air Conditioning (Cluster)
USOE 17.0100

SUGGESTED WORK FACTORS:

Measuring ability
Craftsmanship
Numerical ability
Manual dexterity
Judgment
Use of hand tools
Safety consciousness
Medium finger dexterity
Eye/hand coordination
Bimanual coordination
Form perception
Care in handling
Frustration tolerance

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: AUTOMOTIVE SERVICES

USOE Code: 17.0300

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 620 - MOTORIZED VEHICLE AND ENGINEERING EQUIPMENT MECHANICS AND REPAIRERS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
620.261-014	AUTOMOBILE TESTOR	
620.281-018	AUTOMOTIVE-MAINTENANCE-EQUIPMENT SERVICER	Automotive-Maintenance Equipment Repairer; Equipment-Service Engineer; Pump and Tank Servicer
620.281-026	BRAKE REPAIRER	Brake Mechanic; Brake Repair Mechanic; Brakeshoe Repairer
620.281-038	FRONT-END MECHANIC	Alignment Mechanic; Axle and Frame Mechanic; Chassis Mechanic; Wheel Alignment Mechanic
620.281-066	TUNE-UP MECHANIC	
620.364-010	SQUEAK, RATTLE AND LEAK REPAIRER	
720.684-034	USED CAR RENOVATOR	Used Car Conditioner
279.357-062	SALESPERSON, PARTS	Counter Clerk; Parts Clerk
721.281-010	AUTOMOTIVE GENERATOR AND STARTER REPAIRER	
806.361-026	NEW CAR GET-READY MECHANIC	Car Checker; Make Ready Mechanic
806.684-038	AUTOMOBILE ACCESSORIES INSTALLER	
807.267-010	SHOP ESTIMATOR	
807.664-010	MUFFLER INSTALLER	
915.467-010	AUTOMOBILE SERVICE STATION ATTENDANT	Filling Station Attendant; Gas Station Attendant; Gas Tender; Service Station Attendant
915.687-018	LUBRICATION SERVICER	Greaser; Lubrication Technician; Oiler

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.267 - Analyzing; Speaking - signalling, Handling
.281 - Analyzing; Taking instructions - helping; Precision working
.357 - Compiling; Persuading; Handling
.361 - Compiling; Speaking - signalling; Precision working
.364 - Compiling; Speaking - signalling; Manipulating
.467 - Computing; Speaking - signalling; Handling
.664 - Comparing; Speaking - signalling; Manipulating
.684 - Comparing; Taking instructions - helping; Manipulating
.687 - Comparing; Taking instructions - helping; Handling

(Continued next page)

Program Title: AUTOMOTIVE SERVICES (Continued)

USOE Code: 17.0300

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Automotive Services
USOE 17.0300

SUGGESTED WORK FACTORS:

Manual dexterity
Judgment
Numerical ability
Safety consciousness
Use of hand tools
Improvement of work performance with repetition
Measuring ability
Craftsmanship
Eye/hand coordination
Medium finger dexterity
Frustration tolerance
Standing tolerance
Lifting tolerance

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: BODY AND FENDER

USOE Code: 17.0301

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 807 - BODY WORKERS, TRANSPORTATION EQUIPMENT

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
807.267-010	SHOP ESTIMATOR	
807.361-010	AUTOMOBILE-BODY CUSTOMIZER	
807.381-010	AUTOMOBILE-BODY-REPAIRER	Automobile Body Worker; Body Line Finisher; Body Repairer-Bus Dent Remover; Door Repairer; Bus Metal Bumper; Metal Shrinker; Metal Worker; Touch-up Finisher
807.684-010	AUTOMOBILE BUMPER STRAIGHTENER	Bumper Straightener
807.687-010	AUTOMOBILE BODY REPAIRER HELPER	
241.267-014	APPRAISER, AUTOMOBILE DAMAGE	
845.381-014	PAINTER, TRANSPORTATION EQUIPMENT	
845.684-014	PAINTER HELPER, AUTOMOTIVE	Sander

DOT Worker Trait Group Arrangement*:

.267 - Analyzing; Speaking - signalling; Handling
.361 - Compiling; Speaking - signalling; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.684 - Comparing; Taking instructions - helping; Manipulating
.687 - Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Body and Fender
USOE 17.0301

SUGGESTED WORK FACTORS:

Use of hand tools
Measuring ability
Craftsmanship
Neatness
Form perception
Manual dexterity
Safety consciousness
Color discrimination
Eye/hand coordination
Lifting tolerance
Numerical ability
Judgment

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: AUTO MECHANICS

USOE Code: 17.0302

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 620 - MOTORIZED VEHICLE AND ENGINEERING EQUIPMENT MECHANICS AND REPAIRERS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
620.261-010	AUTOMOBILE MECHANIC	Garage Mechanic
620.261-014	AUTOMOBILE TESTOR	
620.261-018	AUTOMOBILE-REPAIR-SERVICE ESTIMATOR	
620.281-026	BRAKE REPAIRER	Brake Mechanic; Brake-Repair Mechanic; Brakeshoe Repairer
620.281-030	BUS INSPECTOR	Motor Inspection Mechanic
620.281-034	CARBURETOR-MECHANIC	Carburetor Repairer
620.231-084	MOTORCYCLE REPAIRER	Motorcycle Mechanic
620.381-010	AUTOMOBILE-RADIATOR MECHANIC	Radiator Repairer
620.684-014	AUTOMOBILE-MECHANIC HELPER	Automobile Mechanic Assistant
620.684-034	USED CAR RENOVATOR	Used Car Conditioner

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.281 - Analyzing; Taking instructions - helping; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.684 - Comparing; Taking instructions - helping; Manipulating

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* The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Auto Mechanics
USOE 17.0302

SUGGESTED WORK FACTORS:

Manual dexterity
Use of hand tools
Safety consciousness
Medium finger dexterity
Improvement of work performance with repetition
Form perception
Eye/hand coordination
Standing tolerance
Measuring ability
Neatness
Numerical ability
Judgment
Care in handling

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: COMMERCIAL ART OCCUPATIONS

USOE Code: 17.0700

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 141 - COMMERCIAL ARTISTS: DESIGNERS AND ILLUSTRATORS, GRAPHIC ARTS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
141.061-010	CARTOONIST	
141.061-014	FASHION ARTIST	
141.061-018	GRAPHIC DESIGNER	Layout Artist
141.061-022	ILLUSTRATOR	Artist; Commercial Artist; Graphic Artist
141.081-014	COMMERCIAL DESIGNER	
142.051-010	DISPLAY DESIGNER	Display and Banner Designer, Flag Decorator and Designer
142.081-018	PACKAGE DESIGNER	
970.281-022	SIGN WRITER, HAND	Card Writer, Hand; Show-Card Writer
970.381-018	LAY-OUT FORMER	
970.381-026	PAINTER, SIGN	Letterer

DOT Worker Trait Group Arrangement*:

.051 - Synthesizing; Persuading; Precision working
.061 - Synthesizing; Speaking - signalling; Precision working
.081 - Synthesizing; Taking instructions - helping; Precision working
.281 - Analyzing; Taking instructions - helping; Precision working
.381 - Compiling; Taking instructions - helping; Precision working

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Commercial Art Occupations
USOE 17.0700

SUGGESTED WORK FACTORS:

Use of hand tools
Craftsmanship
Form perception
Color Discrimination
Measuring ability
Fine finger dexterity
Judgment
Spatial/size discrimination
Neatness

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: CONSTRUCTION AND MAINTENANCE TRADES

USOE Code: 17.1000

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 869 - MISCELLANEOUS CONSTRUCTION OCCUPATIONS, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
869.261-010	HOUSE MOVER	
869.281-014	HOUSE BUILDER	
869.381-010	HOUSE REPAIRER	
869.664-014	CONSTRUCTION WORKER I	
869.684-010	ASSEMBLER	Framer
860.381-042	CARPENTER, ROUGH	Bracer
861.381-018	BRICKLAYER	
862.381-030	PLUMBER	
899.381-010	MAINTENANCE REPAIRER, BUILDING	Building Repairer

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.281 - Analyzing; Taking instructions - helping; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.664 - Comparing, Speaking - signalling; Manipulating
.684 - Comparing; Taking instructions - helping; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Construction and Maintenance Trades
USOE 17.1000

SUGGESTED WORK FACTORS:

Safety consciousness
Use of hand tools
Eye/hand coordination
Care in handling
Manual dexterity
Standing tolerance
Lifting tolerance
Numerical ability
Measuring ability
Form perception
Neatness
Spatial/size discrimination
Craftsmanship

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: CONSTRUCTION AND MAINTENANCE TRADES, OTHER

USOE Code: 17.1099

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 899 MISCELLANEOUS STRUCTURAL WORK OCCUPATIONS, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
382.664-010	JANITOR	Maintenance Engineer; Superintendent Building
389.687-018	LIGHT FIXTURE SERVICER	Fixture Relamper, Flourescent Lamp Replacer; Light Bulb Replacer; Light Cleaner
899.381-010	MAINTENANCE REPAIRER, BUILDING	Building Repairer
899.684-042	WINDOW REPAIRER	
899.684-022	MAINTENANCE REPAIRER HELPER, FACTORY OR MILL	General Maintenance Helper
638.684-018	MAINTENANCE MECHANIC HELPER	Machine Adjuster Helper; Repair Helper
620.664-010	CONSTRUCTION EQUIPMENT MECHANIC HELPER	

DOT Worker Trait Group Arrangement*:

.381 - Compiling; Taking instructions - helping; Coordinating
.664 - Comparing; Speaking - signalling; Diverting
.684 - Comparing; Taking instructions - helping; Diverting
.687 - Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Construction and Maintenance Trades, Other
USOE 17.1099

SUGGESTED WORK FACTORS:

Measuring ability
Safety consciousness
Use of hand tools
Care in handling
Manual dexterity
Craftsmanship
Judgment
Eye/hand coordination
Standing tolerance
Lifting tolerance
Neatness
Conscientious attitude towards work

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: CARPENTRY

USOE Code: 17.1001

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 860 - CARPENTERS AND RELATED OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
860.281-010	CARPENTER, MAINTENANCE	Carpenter, Repair
860.381-022	CARPENTER	
860.381-026	CARPENTER APPRENTICE	
860.381-042	CARPENTER, ROUGH	
860.381-046	FORM BUILDER	Carpenter, form; Wood - Form Builder
860.664-010	CARPENTER I	
860.664-014	JOINER HELPER	
860.681-010	CARPENTER II	
860.684-014	SIDER	

DOT Worker Trait Group Arrangement*:

.281 - Analyzing; Taking instructions - helping; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.664 - Comparing; Speaking - signalling; Precision working
.681 - Comparing; Taking instructions - helping; Manipulating
.684 - Comparing; Taking instructions - helping; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Carpentry
USOE 17.1001

SUGGESTED WORK FACTORS:

Eye/hand coordination
Bimanual coordination
Manual dexterity
Use of hand tools
Measuring ability
Form perception
Craftsmanship
Care in handling
Safety consciousness
Neatness
Improvement of work performance with repetition
Judgment

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: MASONRY

USOE Code: 17.1004

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 861 - BRICK AND STONE MASONS AND TILE SETTERS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
861.361-014	MONUMENT SETTER	Setter; Tombstone Setter
899.364-010	CHIMNEY REPAIRER	
861.381-014	BRICKLAYER	Kiln Repairer
861.381-018	BRICKLAYER	
861.381-022	BRICKLAYER APPRENTICE	
861.381-026	BRICKLAYER, FIREBRICK AND REFRACTORY TILE	Brick Mason
861.381-038	STONEMASON	
861.687-010	BRICKLAYER HELPER, FIREBRICK AND REFRACTORY TILE	Brick Mason Helper

DOT Worker Trait Group Arrangement*:

.361 - Compiling; Speaking - signalling; Precision working
.364 - Compiling; Speaking - signalling; Manipulating
.381 - Compiling; Taking instructions - helping; Precision working
.687 - Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Masonry
USOE 17.1004

SUGGESTED WORK FACTORS:

Use of hand tools
Manual dexterity
Craftsmanship
Form perception
Measuring ability
Standing tolerance
Lifting tolerance
Eye/hand coordination
Spatial/size discrimination
Work pace
Care in handling
Safety consciousness
Improvement of work performance with repetition
Neatness
Judgment

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: CUSTODIAL SERVICES

USOE Code: 17.1100

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 381 PORTERS AND CLEANERS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
381.687-014	CLEANER, COMMERCIAL OR INSTITUTIONAL	Char Worker; Clean-up Worker; Housekeeper; Janitor; Laborer - Building Maintenance; Mopper; Porter Scrubber; Sweeper
381.687-026	CLEANER, WALL	Wallpaper Cleaner; Wall Washer
381.687-018	CLEANER, INDUSTRIAL	Clean-up Worker; Janitor; Sanitor; Scrubber; Sweeper; Trash Collector; Vacuum Cleaner; Waste Collector
381.687-034	WAXER, FLOOR	
358.687-010	CHANGE-HOUSE ATTENDANT	Dry Boss; Dry Janitor; Shower-room Attendant
382.664-010	JANITOR	Maintenance Engineer; Superintendent, Building
389.683-010	SWEEPER-CLEANER, INDUSTRIAL	Cleaner Operator; Power-Cleaner Operator; Vacuum Cleaner Operator
389.687-014	CLEANER, WINDOW	Window Washer

DOT Worker Trait Group Arrangement*:

.664 - Comparing; Speaking - signalling; Manipulating
.683 - Comparing; Taking instructions - helping; Driving - operating
.687 - Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Custodial Services
USOE 17.1100

SUGGESTED WORK FACTORS:

Use of hand tools
Manual dexterity
Care in handling
Safety consciousness
Judgment
Standing tolerance
Lifting tolerance
Neatness
Measuring ability

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: DIESEL MECHANIC

USOE Code: 17.1200

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 625 - ENGINE, POWER TRANSMISSION AND RELATED MECHANICS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
625.261-010	DIESEL ENGINE TESTOR	
625.281-010	DIESEL MECHANIC	
625.281-022	FUEL-INJECTION SERVICER	
625.361-010	DIESEL ENGINE ERECTOR	Diesel Engine Fitter
625.684-010	DIESEL MECHANIC HELPER	

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.281 - Analyzing; Taking instructions - helping; Precision working
.361 - Compiling; Speaking - signalling; Precision working
.684 - Comparing; Taking instructions - helping; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Diesel Mechanic
USOE 17.1200

SUGGESTED WORK FACTORS:

Use of hand tools
Medium finger dexterity
Craftsmanship
Numerical ability
Manual dexterity
Measuring ability
Eye/hand coordination
Form perception
Standing tolerance
Safety consciousness
Spatial/size discrimination
Care in handling
Physical sensitivity - exhaust
Judgment

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: DRAFTING

USOE Code: 17.1300

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 007 - MECHANICAL ENGINEERING OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
007.161-010	DIE DESIGNER	Design Leader; Die Design Drafter; Die Developer
007.161-018	ENGINEERING ASSISTANT, MECHANICAL EQUIPMENT	Drafter; Lay-out Drafter; Mechical Design Technician
007.261-010	CHIEF DRAFTER	Layer-out; Lay-out Drafter
007.261-014	DRAFTER, CASTINGS	
007.261-018	DRAFTER, PATENT	
007.261-022	DRAFTER, TOOL DESIGN	
007.281-010	DRAFTER, MECHANICAL	Drafter, Engineering
001.261-010	DRAFTER, ARCHITECTURAL	
003.281-010	DRAFTER, ELECTRICAL	
003.281-014	DRAFTER, ELECTRONIC	
017.261-038	DRAFTER, PLUMBING	

DOT Worker Trait Group Arrangement*:

.161 - Coordinating; Speaking - signalling; Precision working
.261 - Analyzing; Speaking - signalling; Precision working
.281 - Analyzing, Taking instructions - helping; Precision working

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Drafting
USOE 17.1300

SUGGESTED WORK FACTORS:

Measuring ability
Eye/hand coordination
Numerical ability
Form perception
Fine finger dexterity
Neatness
Spatial/size discrimination
Motor coordination
Craftsmanship
Use of hand tools
Numerical ability
Conscientious attitude towards work
Judgment

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: ELECTRICITY (Residential)

USOE Code: 17.1002

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 824 - OCCUPATIONS IN ASSEMBLY, INSTALLATION AND REPAIR OF LIGHTING EQUIPMENT AND BUILDING WIRING, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
824.261-010	ELECTRICIAN	Wirer
824.281-014	ELECTRIC DISTRIBUTION CHECKER	
824.681-010	ELECTRICIAN	
829.684-022	ELECTRICIAN HELPER	Wirer Helper

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.281 - Analyzing; Taking instructions - helping; Precision working
.681 - Comparing; Taking instructions - helping; Precision working
.684 - Comparing, Taking instructions - helping, Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Electricity (Residential)
USOE 17.1002

SUGGESTED WORK FACTORS:

Safety Consciousness
Use of hand tools
Measuring ability
Neatness
Medium finger dexterity
Manual dexterity
Bimanual coordination
Form perception
Craftsmanship
Improvement of work performance with repetition
Frustration tolerance

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: INDUSTRIAL ELECTRICIAN

USOE Code: 17.1401

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 729 - OCCUPATIONS IN ASSEMBLY AND REPAIR OF ELECTRICAL EQUIPMENT, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
729.281-014	ELECTRIC METER REPAIRER	Meter Repairer
729.281-022	ELECTRIC TOOL REPAIRER	Power Tool Repairer
729.381-018	STREET LIGHT REPAIRER	
729.381-022	WIRER, CABLE	
820.261-014	ELECTRICIAN, POWER HOUSE	
821.361-026	LINE REPAIRER	Hiker; Line Servicer
826.361-010	ASSEMBLER AND WIRER, INDUSTRIAL EQUIPMENT	Panel Assembler and Wirer
829.361-010	CABLE SPLICER	Electrician; Cable Splicing; Splicer
829.684-022	ELECTRICIAN HELPER	Wirer Helper

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.281 - Analyzing; Taking instructions - helping; Precision working
.361 - Compiling; Speaking - signalling; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.684 - Comparing; Taking instructions - helping; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Industrial Electrician
USOE 17.1401

SUGGESTED WORK FACTORS:

Safety consciousness
Measuring ability
Medium finger dexterity
Use of hand tools
Manual dexterity
Numerical ability
Craftsmanship
Frustration tolerance
Standing tolerance
Physical sensitivity - change in temperature
Conscientious attitude towards work
Judgment

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: ELECTRICAL OCCUPATIONS (Other)

USOE Code: 17.1499

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 829 - OCCUPATIONS IN INSTALLATION AND REPAIR OF ELECTRICAL PRODUCTS, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
829.684-022	ELECTRICIAN HELPER	Wirer Helper
723.381-010	ELECTRICAL APPLIANCE REPAIRER	Appliance Service Representative; Small Appliance Repairer
821.261-014	LINE MAINTAINER	
827.261-010	ELECTRICAL APPLIANCE SERVICER	Appliance Service Representative
827.661-010	HOUSEHOLD APPLIANCE INSTALLER	

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.661 - Comparing; Speaking - signalling; Precision working
.684 - Comparing; Taking instructions - helping; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Electrical Occupations (Other)
USOE 17.1499

SUGGESTED WORK FACTORS:

Use of hand tools
Manual dexterity
Safety consciousness
Eye/hand coordination
Measuring ability
Care of handling
Conscientious attitude towards work
Judgment
Neatness

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: INDUSTRIAL ELECTRONICS

USOE Code: 17.1502

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 828 - OCCUPATIONS IN FABRICATION, INSTALLATION AND REPAIR OF ELECTRICAL AND ELECTRONICS PRODUCTS, N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
828.281-010	ELECTRONICS MECHANIC	Communications Technician; Electronics Equipment Mechanic; Electronics Specialist; Electronic System Mechanic; Electronics Technician
828.381-010	EQUIPMENT INSTALLER	
710.281-026	INSTRUMENT MECHANIC	Instrument Maintenance Mechanic
710.281-030	INSTRUMENT TECHNICIAN	Ocillograph Technician
821.261-018	RELAY TECHNICIAN	

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.281 - Analyzing; Taking instructions - helping; Precision working
.381 - Compiling; Taking instructions - helping; Precision working

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Industrial Electronics
USOE 17.1502

SUGGESTED WORK FACTORS:

Manual dexterity
Use of hand tools
Eye/hand coordination
Safety consciousness
Numerical ability
Measuring ability
Craftsmanship
Care in handling
Frustration tolerance
Conscientious attitude towards work
Judgment
Neatness

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: RADIO/TELEVISION

USOE Code: 17.1503

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U. S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 720 OCCUPATIONS IN ASSEMBLY AND REPAIR OF RADIO AND TELEVISION RECEIVING SETS AND PHONOGRAPHS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
720.281-010	RADIO REPAIRER	Trouble Shooter, Radio
720.281-014	TAPE RECORDER REPAIRER	
720.281-018	TELEVISION AND RADIO REPAIRER	Television Repairer
726.381-014	PRODUCTION REPAIRER	Rework Operator
726.684-018	ELECTRONICS ASSEMBLER	
823.261-010	PUBLIC ADDRESS SERVICER	Electronic Sound Technician; Public Address System Operator
823.261.018	RADIO MECHANIC	
823.361-010	TELEVISION INSTALLER	

DOT Worker Trait Group Arrangement*:

.261 Analyzing; Speaking - signalling; Precision working
.281 Analyzing; Taking instructions - helping; Precision working
.361 Compiling; Speaking - signalling; Precision working
.381 Compiling; Taking instructions - helping; Precision working
.684 Comparing; Taking instructions - helping; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Radio/Television
USOE 17.1503

SUGGESTED WORK FACTORS:

Use of hand tools
Manual dexterity
Craftsmanship
Safety consciousness
Eye/hand coordination
Care in handling
Frustration tolerance
Conscientious attitude towards work
Judgment
Neatness
Color discrimination (color TV only)

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: GRAPHIC ARTS OCCUPATIONS

USOE Code: 17.1900

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 97 - OCCUPATIONS IN GRAPHIC ART WORK

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
971.381-018	OFFSET-PLATE MAKER	Process-Camera Operator
971.381-022	PHOTOENGRAVER	Engraving Operator; Photolith Operator
971.381-050	STRIPPER	Negative Assembler; Negative Turner
971.382-014	PHOTOGRAPHER, PHOTOENGRAVING	
651.362-018	PLATEN PRESS OPERATOR	
651.380-010	PRINTER II	
651.482-010	OFFSET PRESS OPERATOR I	Lithographic Press Operator
651.585-010	ASSISTANT PRESS OPERATOR	Flexographic Press Helper; Offset Press Operator Helper; Web Press Operator Assistant
653.585-010	COLLATING MACHINE OPERATOR	Set Making Machine Operator
653.685-010	BINDERY WORKER	Bindery Operator; Table Worker
973.381-010	COMPOSITOR	Typesetter; Typographer
973.381-018	JOB PRINTER	Country Printer; Printer
973.381-030	PROOF SHEET CORRECTOR	

DOT Worker Trait Group Arrangements*:

.362 - Compiling; Speaking - signalling; Operating - controlling
.380 - Compiling; Taking instructions - helping; Setting up
.381 - Compiling; Taking instructions - helping; Precision working
.382 - Compiling; Taking instructions - helping; Operating - controlling
.482 - Computing; Taking instructions - helping; Operating - controlling
.585 - Copying; Taking instructions - helping; Tending
.685 - Comparing; Taking instructions - helping; Tending

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Graphic Arts Occupations
USOE 17.1900

SUGGESTED WORK FACTORS:

- Craftsmanship
- Neatness
- Eye/hand coordination
- Measuring ability
- Manual dexterity
- Color discrimination
- Form perception
- Spatial/size discrimination
- Safety consciousness
- Care in handling
- Judgment
- Standing tolerance

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: MACHINE SHOP

USOE Code: 17.2302

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 600 MACHINISTS AND RELATED OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
600.280-022	MACHINIST	Machinist, All Around; Machinist, First Class; Machinist, General; Machinist, Precision
600.280-042	MAINTENANCE MACHINIST	Machine Repairer; Shop Mechanic; Machinist
600.281-018	LAY-OUT WORKER	
600.380-014	JOB SETTER	Machine Adjuster; Machine Setter; Machinist, Tool Setter; Tool Setter
600.380-018	MACHINE SET-UP OPERATOR	Machine Operator, All Around; Machine Operator, General; Machinist
601.280-042	TOOL MAKER	
609.482-010	ELECTRICAL DISCHARGE MACHINE OPERATOR, PRODUCTION	
609.662-010	NUMERICAL CONTROL MACHINE OPERATOR	
609.685-018	PRODUCTION-MACHINE TENDER	All-Around Machine Operator; Machine Hand; Mechanic Operator, General; Production Machine Operator; Machinist; Miscellaneous Machine Operator

DOT Worker Trait Group Arrangement*:

.280 Analyzing; Taking instructions - helping; Setting up
.281 Analyzing; Taking instructions - helping; Precision working
.380 Compiling; Taking instructions - helping; Setting up
.482 Computing; Taking instructions - helping; Operating - controlling
.685 Comparing; Taking instructions - helping; Tending

(Continued on next page)

Program Title: MACHINE SHOP (Continued)

USOE Code: 17.2302

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Program Title: METAL TRADES (COMBINED)

USOE Code: 17.2304

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 616 - FABRICATING MACHINE OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
616.260-014	MULTI-OPERATION FORMING MACHINE SETTER	
616.360-018	MACHINE OPERATOR I	Fabricating Machine Operator
617.482-010	BENDING MACHINE OPERATOR I	
619.260-008	ORNAMENTAL METAL WORKER	Art-Metal Worker
619.360-014	METAL FABRICATOR	
619.361-010	FORMER, HAND	
619.484-010	ORNAMENTAL METAL WORKER HELPER	Art-Metal Worker Helper
801.381-010	ASSEMBLER, METAL BUILDING	
809.281-010	LAYOUT WORKER I	
809.681-010	ASSEMBLER, UNIT	
810.384-014	WELDER, ARC	
813.360-010	BRAZING MACHINE SETTER	

DOT Worker Trait Group Arrangement*:

.260 - Analyzing; Speaking - signalling; Setting up
.281 - Analyzing; Taking instructions - helping; Precision working
.360 - Compiling; Speaking - signalling; Setting up
.361 - Compiling; Speaking - signalling; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.384 - Compiling; Taking instructions - helping; Manipulating
.482 - Computing; Taking instructions - helping; Operating - controlling
.484 - Computing; Taking instructions - helping; Manipulating
.681 - Comparing; Taking instructions - helping; Precision working

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Program Title: SHEET METAL

USOE Code: 17.2305

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 616 - FABRICATING MACHINE OCCUPATIONS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
616.260-014	MULTI-OPERATION FORMING MACHINE SETTER	
616.360-018	MACHINE OPERATOR I	Fabricating Machine Operator
616.360-022	MACHINE SETTER	
616.360-026	MULTI-OPERATION FORMING MACHINE OPERATOR I	
617.260-010	PRESS OPERATOR, HEAVY DUTY	Bending Press Operator; Hydraulic Press Operator; Toggle-Press Operator
617.360-010	BRAKE OPERATOR I	Press Brake Operator
619.685-062	MACHINE OPERATOR II	
619.686-022	METAL FABRICATING SHOP HELPER	Helper, Steel Fabrication; Plate Shop Helper; Production Helper; Structural Shop Helper
699.482-010	RIVETING MACHINE OPERATOR I	
804.281-010	SHEET METAL WORKER	Sheet Metal Mechanic
804.481-010	HOOD MAKER	
809.281-010	LAY-OUT WORKER I	
809.381-014	LAY-OUT WORKER II	Duplicator; Lay-Out Maker
813.684-014	SOLDERER - ASSEMBLER	Production Solderer; Returned Goods Repairer

DOT Worker Trait Group Arrangement*:

.260 - Analyzing; Speaking - signalling; Setting up
.281 - Analyzing; Taking instructions - helping; Precision working
.360 - Compiling; Speaking - signalling; Setting up
.381 - Compiling; Taking instructions - helping; Precision working
.481 - Computing; Taking instructions - helping; Precision working
.482 - Computing; Taking instructions - helping; Operating - controlling
.684 - Comparing; Taking instructions - helping; Manipulating
.685 - Comparing; Taking instructions - helping; Tending
.686 - Comparing; Taking instructions - helping; Feeding - offbearing

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Program Title: SHEET METAL (Continued)

USOE Code: 17.2305

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Sheet Metal
USOE 17.2305

SUGGESTED WORK FACTORS:

- Measuring ability
- Numerical ability
- Craftsmanship
- Use of hand tools
- Spatial/size discrimination
- Form perception
- Manual dexterity
- Care in handling
- Safety consciousness
- Standing tolerance
- Lifting tolerance
- Conscientious attitude towards work
- Judgment
- Neatness

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: WELDING AND CUTTING

USOE Code: 17.2306

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 819 WELDERS, CUTTERS, AND RELATED OCCUPATIONS N.E.C.

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
819.281-010	LEAD BURNER	Leader Welder
819.361-010	WELDER-FITTER	
819.381-010	WELDER-ASSEMBLER	
819.384-010	WELDER, COMBINATION	
819.666-010	MACHINE HELPER	
809.381-022	ORNAMENTAL IRON WORKER	Housesmith; Metal-Trim Erector; Ornamental Iron Erector
810.382-010	WELDING MACHINE OPERATOR, ARC	
810.384-014	WELDER, ARC	
811.482-010	WELDING MACHINE OPERATOR, GAS	Welder, Gas, Automatic
811.684-014	WELDER, GAS	

DOT Worker Trait Group Arrangement*:

.281 Analyzing; Taking instructions - helping; Precision working
.361 Compiling; Speaking - signalling: Precision working
.381 Compiling; Taking instructions - helping; Precision working
.382 Compiling; Taking instructions - helping; Operating - controlling
.384 Compiling; Taking instructions - helping; Manipulating
.482 Computing; Taking instructions - helping; Operating - controlling
.666 Comparing; Speaking - signalling; Feeding - offbearing
.684 Comparing; Taking instructions - helping; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Welding and Cutting
USOE 17.2306

SUGGESTED WORK FACTORS:

Safety consciousness
Manual dexterity
Use of hand tools
Eye/hand coordination
Measuring ability
Form perception
Spatial/size discrimination
Craftsmanship
Standing tolerance
Physical sensitivity - heat
Neatness
Judgment
Care in handling
Conscientious attitude towards work

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: COSMETOLOGY

USOE Code: 17.2602

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 332 - HAIRDRESSERS AND COSMETOLOGISTS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
332.271-010	COSMETOLOGIST	Beautician; Beauty Culturalist; Beauty Operator; Cosmetidian
332.271-018	HAIR STYLIST	Hairdresser
332.361-010	WIG DRESSER	Hairdresser
330.371-010	BARBER	Haircutter; Tonsorial Artist
331.674-010	MANICURIST	
333.271-010	BODY MAKE-UP ARTIST	
339.371-014	SCALP TREATMENT OPERATOR	Hair and Scalp Specialist; Scalp Specialist; Trichologist

DOT Worker Trait Group Arrangement*:

.271 - Analyzing; Serving; Precision working
.361 - Compiling; Speaking - signalling; Precision working
.371 - Compiling; Serving; Precision working
.674 - Comparing; Serving; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Cosmetology
USOE 17.2602

SUGGESTED WORK FACTORS:

Medium finger dexterity
Use of hand tools
Eye/hand coordination
Manual dexterity
Craftsmanship
Color discrimination
Bimanual coordination
Form perception
Neatness

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: COOK/CHEF

USOE Code: 17.2902

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 313 - CHEFS AND COOKS, HOTELS AND RESTAURANTS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
313.131-014	CHEF	Cook; Chief; Kitchen chef
313.361-014	COOK	Cook; Restaurant
313.361-026	COOK, SPECIALTY	
313.381-022	COOK, BARBECUE	
317.687-010	COOK HELPER	
313.281-010	CHEF DE FROID	
313.361-022	COOK, SHORT ORDER I	
313.381-026	COOK, PASTRY	Baker, Cakes; Baker, Pastry; Cake Maker
316.661-010	CARVER	Display Carver; Exhibition Carver; Meat Carver
317.684-014	PANTRY GOODS MAKER	

DOT Worker Trait Group Arrangement*:

.131 - Coordinating; Supervising; Precision Working
.281 - Analyzing; Taking instructions - helping; Precision working
.361 - Compiling; Speaking - signalling; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.661 - Comparing; Speaking - signalling; Precision working
.684 - Comparing; Taking instructions - helping; Manipulating
.687 - Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people, and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Cook/Chef
USOE 17.2902

SUGGESTED WORK FACTORS:

Use of hand tools
Craftsmanship
Eye/hand coordination
Measuring ability
Manual dexterity
Neatness
Form perception

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: POWER MECHANICS

USOE Code: 17.3101

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 625 ENGINE, POWER TRANSMISSION AND RELATED MECHANICS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
625.281-026	GAS ENGINE REPAIRER	
625.281-030	POWER SAW MECHANIC	Chain-Saw Mechanic
625.281-034	SMALL ENGINE MECHANIC	
600.260-014	EXPERIMENTAL MECHANIC	Developmental Mechanic
620.261-026	ELECTRIC GOLF CART REPAIRER	Golf Cart Mechanic
620.281-054	MOTORCYCLE REPAIRER	Motorcycle Mechanic
620.281-062	TRANSMISSION MECHANIC	
620.384-010	MOTORCYCLE TESTOR	
620.684-026	MOTORCYCLE SUBASSEMBLY REPAIRER	

DOT Worker Trait Group Arrangement*:

.260 Analyzing; Speaking - signalling; Setting up
.261 Analyzing; Speaking - signalling; Precision working
.281 Analyzing; Taking instructions - helping; Precision working
.384 Compiling; Taking instructions - helping; Manipulating
.684 Comparing; Taking instructions - helping; Manipulating

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Power Mechanics
USOE 17.3101

SUGGESTED WORK FACTORS:

Use of hand tools
Medium finger dexterity
Judgment
Safety consciousness
Eye/hand coordination
Manual dexterity
Measuring ability
Form perception
Care in handling
Standing tolerance
Improvement of work performance with repetition

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: MILLWORK AND CABINET MAKING

USOE Code: 17.3601

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 660 - CABINETMAKERS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
660.280-010	CABINETMAKER	
662.682-010	MOLDING SANDER	Automatic-Mold Sander; Contour Sander
662.682-014	MULTIPLE DRUM SANDER	Drum Sander
663.685-018	MOLDING CUTTER	
664.382-014	WOOD TURNING LATHE OPERATOR	Wood-Lathe Operator
665.482-010	JOINTER OPERATOR	
665.682-030	ROUTER OPERATOR	Routing Machine Operator
667.682-010	BAND-SCROLL SAW OPERATOR	Scroll Saw Operator; Tilting Head Band Sawyer
667.682-042	JIG SAW OPERATOR	Fret-Saw Operator; Scroll Saw Operator
669.280-010	MACHINE SETTER	
669.380-014	MACHINIST, WOOD	Woodworking Machine Operator

DOT Worker Trait Group Arrangement*:

.280 - Analyzing; Taking instructions - helping; Setting up
.380 - Compiling; Taking instructions - helping; Setting up
.382 - Compiling; Taking instructions - helping; Operating - controlling
.482 - Computing; Taking instructions - helping; Operating - controlling
.682 - Comparing; Taking instructions - helping; Operating - controlling
.685 - Comparing; Taking instructions - helping; Tending

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Millwork and Cabinet Making
USOE 17.3601

SUGGESTED WORK FACTORS:

- Craftsmanship
- Measuring abiltiy
- Numerical ability
- Form perception
- Use of hand tools
- Eye/hand coordination
- Manual dexterity
- Judgment
- Care in handling
- Safety consciousness
- Neatness

ADDITIONAL FACTORS:

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NOTES:

Local Employment Needs

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State Employment Needs

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Program Title: MINE MACHINERY - REPAIR

USOE Code: 17.3703

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 620 - MOTORIZED VEHICLE AND ENGINEERING EQUIPMENT MECHANICS AND REPAIRERS

Related DOT Job Titles:

DOT Code	Job Title	Alternate Titles
620.261-022	CONSTRUCTION EQUIPMENT MECHANIC	Heavy Equipment Mechanic
620.664-010	CONSTRUCTION EQUIPMENT MECHANIC HELPER	
622.381-030	MINE CAR REPAIRER	Pit car repairer; shop blacksmith
630.281-022	REPAIRER	Mechanic
630.687-010	PULLEY MAINTAINER	
638.281-014	MAINTENANCE MECHANIC	Fixer; Machine Maintenance Server; Machine Overhauler; Machine Repairer; Mechanical Adjuster; Repair Mechanic; Tool and Machine Maintainer
638.684-018	MAINTENANCE MECHANIC HELPER	Machine - Adjuster Helper; Repair Helper

DOT Worker Trait Group Arrangement*:

.261 - Analyzing; Speaking - signalling; Precision working
.281 - Analyzing; Taking instructions - helping; Precision working
.381 - Compiling; Taking instructions - helping; Precision working
.664 - Comparing; Speaking - signalling, Manipulating
.684 - Comparing; Taking instructions - helping; Manipulating
.687 - Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people, and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Mine Machinery - Repair
USOE 17.3703

SUGGESTED WORK FACTORS:

- Judgment
- Safety consciousness
- Use of hand tools
- Standing tolerance
- Manual dexterity
- Eye/hand coordination
- Measuring ability
- Form perception
- Care in handling

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

Program Title: MINE MAINTENANCE (CLUSTER)

USOE Code: 17.3704

OCCUPATIONAL CLASSIFICATION

This job sample fits into both the U.S. Department of Labor DOT and the U.S. Office of Education (OE) Career Clusters classification systems.

Primary DOT Occupational Group Arrangement: 630 GENERAL INDUSTRY MECHANICS AND REPAIRS

Related DOT Job Titles

DOT Code	Job Title	Alternate Titles
630.281-022	REPAIRER	Mechanic
630.684-030	SCREEN REPAIRER, CRUSHER	
630.687-010	PULLEY MAINTAINER	
620.261-022	CONSTRUCTION EQUIPMENT MECHANIC	Heavy Equipment Mechanic
622.381-030	MINE CAR REPAIRER	Pit Car Repairer; Shop Blacksmith
869.381-034	TIMBER FRAMER	Timber Repairer
899.684-022	MAINTENANCE-REPAIRER HELPER, FACTORY OR MILL	General Maintenance Helper
899.684-034	SHAFT MECHANIC	Shaft Repairer; Shaft Tender

DOT Worker Trait Group Arrangement*:

.261 Analyzing; Speaking - signalling; Precision working
.281 Analyzing; Taking instructions - helping; Precision working
.381 Compiling, Taking instructions - helping; Precision working
.684 Comparing; Taking instructions - helping; Diverting
.687 Comparing; Taking instructions - helping; Handling

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*The middle three digits of the DOT occupational code are the worker functions ratings of the tasks performed in the occupation. Every job requires a worker to function to some degree in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision working
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signalling	6 Feeding - offbearing
	7 Serving	7 Handling
	8 Taking instructions - helping	

Mine Maintenance (Cluster)
USOE 17.3704

SUGGESTED WORK FACTORS:

Judgment
Safety consciousness
Use of hand tools
Eye/hand coordination
Measuring ability
Manual dexterity
Form perception
Care in handling
Standing tolerance
Lifting tolerance
Physical sensitivity - change in temperature

ADDITIONAL FACTORS:

NOTES:

Local Employment Needs

State Employment Needs

APPENDICES

APPENDIX A

KEY TO VOCATIONAL PROGRAMS IDENTIFIED IN SELECTION CRITERIA
(As illustrated in Appendices B and C)

1. Non-Designated Programs
2. Agriculture
3. Bookkeeping
4. Office Occupations
5. Shorthand
6. Typing
7. Practical Nursing
8. Professional Nursing
9. Clothing Construction
10. Home Economics
11. Computer Programmer
12. Cosmetology
13. Drafting
14. Electronic Technology
15. Industrial Chemistry
16. Auto Body and Fender
17. Auto Mechanics
18. Air Conditioning/Refrigeration
19. Carpentry
20. Construction Technology
21. Electrical
22. Machine Shop
23. Masonry
24. Millwork/Cabinetmaking
25. Mine Machinery Repair
26. Printing
27. Radio/TV
28. Sheet Metal
29. Small Engine Repair
30. Welding and Cutting
31. Industrial Arts
32. Mechanical Drawing
33. Distributive Education
34. Food Service
35. Graphic Arts
36. Medical Assistant

APPENDIX B

SELECTION CRITERIA NOT RELATED TO SUCCESS IN VOCATIONAL EDUCATION PROGRAMS AS IDENTIFIED IN REVIEW OF RELATED RESEARCH

	Research Studies, By Author												
	Berry	Crawford	Doppelt, Seashore & Odgers	Drew	Ewald	Foote	Holland & Lutz	Long	Millett	O'Reilly	Prediger, Waple & Nusbaum	Stock & Pratzner (Postsec. Pop.)	Traxler
Ability to Work with Others													
Abstract Reasoning													
Achievement Tests										1			
Age	1												
Aptitude Tests													
Attendance													
Attitude													
Counselor Recommendation													
Employability													
English Grades													
Grades	1	1				17 Shop			1				
Instructor Recommendation			22										
Interview													
Language Usage													
Manual Dexterity													
Math Grades													
Mechanical Reasoning					1								
Mental Level (Verbal & Non-Verbal)		1									1		1 GATB
Neatness													
Personality Inventories												8	
Program Interest				22			1					1	
Quality of Work			22										
Reading Scores								1					
Responsibility													
Spatial Scores													
Typing Speed													

APPENDIX C

SELECTION CRITERIA RELATED TO SUCCESS IN VOCATIONAL EDUCATION PROGRAMS AS IDENTIFIED IN REVIEW OF RELATED RESEARCH

	Research Studies, By Author											
	Anderson	Broe	Brown	Carlin	Crawford	Drew	Droege	Dubrow	Fleming	Ghiselli & Brown	Gwydir (Com. Col. Population)	Hagemeyer (College Population)
Ability to Work with Others												
Abstract Reasoning												
Achievement Tests												
Age												
Aptitude Tests					1							
Attendance												
Attitude		14										
Counselor Recommendation												1
Employability												
English Grades									1			
Grades	13,14	14				22		1	1		20	
Instructor Recommendation												
Interview					1,22							
Language Usage					14							
Manual Dexterity							26					
Math Grades	13,14, 21			21, 24					1	17,21, 29	20	
Mechanical Reasoning			13,17, 22							17,21, 29		1
Mental Level (Verbal & Non-Verbal)				21, 24	14		26	1				
Neatness												
Personality Inventories												
Program Interest												
Quality of Work												
Reading Scores				21, 24		22						
Responsibility												
Spatial Scores										17,21, 29		
Typing Speed												

SELECTION CRITERIA RELATED TO SUCCESS IN VOCATIONAL EDUCATION PROGRAMS AS IDENTIFIED IN REVIEW OF RELATED RESEARCH (Continued)

	Research Studies, By Author										
	Halsey (Com. Col. Population)	Harvard, 1968	Herr & Baker	Holland & Lutz	Hyde & Wircenski	Johnson	Kapas	Livers	LoCascio	Long	Miller
Ability to Work with Others					34	1					
Abstract Reasoning					17,12,13, 34,35,22						
Achievement Tests											
Age			1								
Aptitude Tests											
Attendance			1		1,4,12,13, 17,22,33, 34,35,36						
Attitude					1,4,12,13, 17,22,33, 34,35,36		1				
Counselor Recommendation					33						
Employability					12,33,36						
English Grades			1,5								
Grades	15,20, 21,32	1	1,5, 10,31		1,4,12,13, 17,22,33, 34,35,36		1	1	1	1	21,22
Instructor Recommendation		1			33,36		1				
Interview											
Language Usage											
Manual Dexterity					34						
Math Grades	15,20, 21,32		1		4,12,13, 17,22,35					1	21,22
Mechanical Reasoning			24		13,17,22,35	1					
Mental Level (Verbal & Non-Verbal)		1	1,5, 10,31		1,4,12,13, 17,22,33, 34,35,36				1		21,22
Neatness					34						
Personality Inventories											
Program Interest		1		1	1,33,34 36						
Quality of Work											
Reading Scores			1		4,12,13 22,34,35, 36					1	21,22
Responsibility					34	1					
Spatial Scores					12,13,17, 22,35						
Typing Speed					4						

SELECTION CRITERIA RELATED TO SUCCESS IN VOCATIONAL EDUCATION PROGRAMS AS IDENTIFIED IN REVIEW OF RELATED RESEARCH (Continued)

	Research Studies, By Author											
	Moss (Post High School Population)	Novak & Schueling	O'Reilly	Prediger, Waple & Nusbaum	Pucel & Nelson	Racky	Stock & Pratzner (Postsec. Pop.)	Weiner	White	Whitten	Worpell	Yung
Ability to Work with Others												
Abstract Reasoning												
Achievement Tests				3,4,5, 6,21								
Age							1	1				
Aptitude Tests				5,6								
Attendance							1	1		1		
Attitude												
Counselor Recommendation												
Employability												
English Grades		17					1					
Grades	13,17, 21,22	17	1	5			1,8			1	1	17
Instructor Recommendation					1							
Interview					1							
Language Usage												
Manual Dexterity												
Math Grades		17		4,10			1		1	1	1	
Mechanical Reasoning				17,19, 22		24					1	
Mental Level (Verbal & Non-Verbal)				31,3, 10,13, 17,22			1		1	1		
Neatness												
Personality Inventories												
Program Interest			1				1					
Quality of Work												
Reading Scores							1				1	
Responsibility												
Spatial Scores				13,19,21							1	
Typing Speed												

APPENDIX D

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APPENDIX E

THE GENERAL APTITUDE TEST BATTERY

The General Aptitude Test Battery (GATB) consists of 12 tests which measure nine Aptitude Areas. These nine Aptitude areas are used to establish an Occupational Aptitude Pattern Structure. Each Occupational Aptitude Pattern (OAP) consists of the most significant aptitudes for that group of jobs and careers.

APTITUDES MEASURED BY THE GATB

The nine Aptitudes Scores are shown on your GATB Record Card under the heading, Individual Aptitude Profile. These Aptitudes are:

Aptitude G - Intelligence. This measures general ability; the ability to understand instructions and underlying principles and the ability to reason and to make judgments. It is closely related to doing well in school.

Aptitude V - Verbal Ability. This measures the ability to understand the meaning of words, to comprehend language, to understand the relationships between words and to understand the meaning of whole sentences and paragraphs.

Aptitude N - Numerical Aptitude. This measures the ability to perform arithmetic operations quickly and accurately.

Aptitude S - Spatial Ability. This measures the ability to think visually about geometric forms, to understand the two-dimensional representation of three-dimensional objects and the ability to recognize the relationships resulting from the movement of objects in space.

Aptitude P - Form Perception. This measures the ability to perceive pertinent detail in pictorial or graphic material, to make visual comparisons and discriminations and to see slight differences in the shapes and shading of figures and in the width and length of lines.

Aptitude Q - Clerical Perception. This measures the ability to perceive pertinent detail in verbal or tabular material, to observe differences in copy, to proofread words and numbers and to avoid perceptual errors in arithmetic computation. A measure of speed of perception which is required in many industrial jobs even when the job does not have verbal or numerical content.

Aptitude K - Motor Coordination. This measures the ability to coordinate eyes and hands or fingers rapidly and accurately in making precise movements with speed.

Aptitude F - Finger Dexterity. This measures the ability to move the fingers and to manipulate small objects rapidly or accurately.

Aptitude M - Manual Dexterity. This measures the ability to move the hands easily and skillfully and the ability to work with the hands in placing and turning.

APPENDIX F

GENERAL APTITUDE TEST BATTERY (GATB)

Grades 9-12 and adults
Two-page profile record card
Nine scores (12 tests: eight paper-pencil, four performance)
150 minutes

Book one - four tests: name comparison, computation, three-dimentional space, vocabulary
Book two - three tests: tool matching, arithmetic reasoning, form matching
Part eight - mark making
Pegboard - two tests: place, turn
Finger Dexterity Board - two tests: assemble, disassemble

(Nonreading adaptation: USES Nonreading Aptitude Test Battery (NATB)
1) GATB-NATB Screening Device - consists of the Wide-Range Scale of the USES Basic Occupational Literacy Test to identify examinees who are deficient in reading skills and should be tested with nonreading adaptation. (15-20 minutes)
2) USES Pretesting Orientation Exercises - test-taking practice for disadvantaged persons. (90 minutes))

GATB

Reviewer: David J. Weiss, Associate Professor of Psychology, University of Minnesota, Minneapolis, Minnesota. (In The Seventh Mental Measurements Yearbook, Oscar Krisen Buros, ed., 7th ed., Vol. II. Highland Park, NJ: The Gryphon Press, 1972, pp. 676-79.)

Fault: GATB fails to give any indication of the relative probability of success if the individual qualifies for more than one Occupational Aptitude Pattern (OAP).
Solution: Write a simple computer program to compute predicted scores for an individual on the OAP's to (1) determine whether he qualifies, (2) interpret results to user. COMPUTER SCORING AND INTERPRETATION SHOULD BE MANDATORY since there is too much data for the counselor to integrate it meaningfully.

Fault: "Nature of 'aptitudes' measured" is not clearly defined. The manual does not include one complete factor matrix: only high loadings on factors are summarized, yet a factor is best established and integrated in the total context of the factor loading matrix. Example: Factor G (sometimes called "general intelligence," sometimes "general learning ability") is "related to doing well in school", yet success in school does not imply success in occupations.

Fault: GATB tests "are designed to measure capacity to learn various jobs," yet there is no direct evidence that individuals with high scores on a given test can learn to do any job better than individuals with low scores.
Solution: GATB subtests must be interpreted as measures of current status and not ability to learn. Interpretation, then, of GATB scores as "capacity to learn" would imply simply that the individual's scores change with time and exposure to environmental experiences. New data is needed to show that GATB's claim of consistency in interpretation is valid.

Fault: GATB tests are too highly speeded; therefore, they penalize the older individual whose slower pace is more likely from a physiological cause than aptitudinal.

Fault: GATB norms were developed in the blue-collar category and are in need of revision. The labor market has changed since GATB was developed: the kinds of abilities identified in factor analysis no longer represent all important vocational abilities for today's and tomorrow's job market; i.e., measure of "verbal ability" should be expanded to measure many kinds or components of verbal ability. This is also true of other cognitive and perceptual abilities.

Summary: The GATB is certainly the best researched of the multiple aptitude batteries. Because of its large amount of validity data, it should be useful to vocational counselors. However, it suffers from a stagnation, which limits its usefulness in many situations.

NATB

Reviewer: Bruce W. Tuckman, Director, Bureau of Research and Development, Rutgers, The State University of New Jersey, New Brunswick, New Jersey. (In The Eighth Mental Measurements Yearbook, Oscar Krisen Buros, ed., 7th Ed., p. 679.)

The NATB was designed to test the occupational aptitudes of persons who do poorly on standard tests because of a lack of reading skills: recent court decisions have emphasized that testing practices must not contribute to employment discrimination.

Since GATB has been studied extensively and its scores linked to occupational aptitude patterns for a large number of occupations, the NATB makes it feasible to test all of a disadvantaged person's vocational abilities and be counseled into jobs from which he/she would have heretofore been excluded because of illiteracy TO THE EXTENT THAT THE NATB AND GATB ARE MEASURING THE SAME QUALITIES.

Caution: The link between the NATB and the OAP must be considered provisional until subsequent empirical work can directly verify the connections between NATB score patterns and OAP's.

Summary: In the absence of alternatives for measuring the vocational aptitudes of nonreaders, the NATB must be considered a potentially valuable tool. Its specific tests seem engaging, well constructed, and suitable for the intended purposes and population.

Reviewer: Victor Steckler, Journal of Employment Counseling, 10 (I), March 1973, pp. 17-20. (In The Eighth Mental Measurements Yearbook, Oscar Krisen Buros, ed., 7th ed., pp. 679-80.)

Lacking norms of its own, the NATB uses the GATB norms, based on a working population of 4,000 nondisadvantaged. Whatever validity the NATB norms and OAP's possess is derived from the NATB's modest correlation with the GATB, which was standardized with nondisadvantaged workers and was not validated against the hard criteria of job and training success.

Fault: Correlations of the NATB with aptitude tests other than the GATB are not offered in the manuals; there is an absence of correlation data with other culturally unbiased aptitude tests.

Fault: Total time of three and one-half hours appears unduly long and taxing and may be at odds with the purpose of testing the disadvantaged, particularly those with marginal motivation for test taking.

Summary: NATB may be useful for career aptitude measurement, but this must yet be demonstrated since validity is questionable: it has no norms of its own for use with the disadvantaged, and it has no reported reliability. By claiming to provide what is considered to be an adequate nonreading test of important aptitudes of the disadvantaged and "dramatically failing to do so," the test may serve to "reaffirm the recognized limitations of the GATB." Due to lack of adequate correlation between GATB and NATB, the contribution of error variance may provide a "distorted view of the performance of certain individuals, among them those disadvantaged persons for whom this test was originally designed."

APPENDIX G

DIFFERENTIAL APTITUDE TESTS

The nine DAT scores provide reliable information to help people find answers to educational, vocational and personal questions. Aptitude is the capacity to learn: DAT scores are, then, measures of capacity to learn--to profit from various courses of study or from training required for jobs. The test results help to evaluate relative strengths and weaknesses in a variety of aptitudes which are important to educational progress and career choices. Aptitude tests will not pinpoint exactly what a person's career choice should be, but along with other information, provides guidance. Other information includes: personal preference, school records, family's thinking, school grades and other test scores, hobbies, out-of-school interests, courses available in school, ambitions, qualities of character and traits of personality such as curiosity, skill in getting along with others and ability to stick with duties and hard tasks, job requirements, health, college entrance requirements, etc.

Verbal Reasoning (VR). This measures the ability to understand ideas expressed in words and to think and reason with words.

Numerical Ability (NA). This measures the ability to understand ideas expressed in numbers and to think and reason with numbers.

VR + NA. These combined scores are a measure of scholastic ability; they are a good measure of scholastic aptitude and aptitude for jobs that require more than the average level of administrative and executive responsibility.

Abstract Reasoning (AR). This measures the ability to understand ideas and think out problems which are not presented in words or numbers.

Clerical Speed and Accuracy (CSA). This measures speed and accuracy in comparing and working written lists, such as names or numbers.

Mechanical Reasoning (MR). This measures the ability to grasp common principles of physics, as seen in everyday things, and to understand laws governing simple appliances, machinery, tools and motions.

Space Relations (SR). This measures the ability to visualize, or form mental pictures of solid objects from looking at flat paper plans: a measure of the ability to think in three dimensions.

Spelling (LU-I). This measures the ability to recognize correct and incorrect spellings of common English words.

Language Usage (LU-II). This measures the ability to use the English language; i.e., competency in punctuation, capitalization and choice of words.

APPENDIX H

DIFFERENTIAL APTITUDE TESTS (DAT)

(Forms S and T)

Grades 8-12 and adults (No reliability data or norms for adults)
Nine scores (eight tests: paper and pencil)
235 minutes (two or more sessions)

Single booklet - verbal reasoning, numerical ability, (separate score for verbal plus numerical--VR+NA), abstract reasoning, clerical speed and accuracy, mechanical reasoning, space relations, spelling, grammar.

Subtests available as separates (Form T only)
Norms available for vocational schools and for Catholic schools.

Reviewer: Thomas J. Bouchard, Jr., Professor of Psychology, University of Minnesota, Minneapolis, Minnesota. (In The Eighth Mental Measurements Yearbook, Oscar Krisen Buros, ed., 8th ed., pp. 665-8.)

The DAT, a classic test originally introduced in 1947 and revised in 1962 and 1972, has dominated the market for 30 years. It provides measures of six basic aptitudes and two achievement variables:

Basic Aptitudes:
- Verbal Reasoning - a comprehension test utilizing analogies
- Numerical Ability - a computation type test embodying only arithmetic principles; no words are used
- Abstract Reasoning - a figural reasoning test where the respondent must infer a rule or principle from a series of figures
- Clerical Speed and Accuracy - a perceptual speed test requiring quick and accurate perception of similarities and differences
- Mechanical Reasoning - a modified version of the Bennett Mechanical Comprehension Test requiring the understanding of basic physical principles
- Space Relations - basically a test of mental manipulation, mental paper folding

Achievement Variables:
- Spelling - recognition of misspelled words
- Language Usage - recognition of poorly formed or nongrammatical sentences

Verbal Reasoning and Numerical Ability are treated as a separate composite and are regarded as the best predictor of grades in many different courses.

Although DAT authors argue strongly against the use of a composite "scholastic aptitude" (IQ score), claiming that such scores are misleading, the reviewer (Bouchard) suggests that empirical validity of the VR+NA composite indicates that this composite score is the best predictor of course performance and that dependence on subtest scores as the primary predictor would be misleading.

Summary: The evidence suggests that the DAT achieves very little differential validity and measures predominantly general intelligence. Space Relations, Mechanical Reasoning, and Clerical Speed and Accuracy measure separate abilities, but for only a small proportion of students is it important to have these measures.

Reviewer: Robert L. Linn, Professor of Educational Psychology, University of Illinois, Urbana, Illinois. (In The Eighth Mental Measurements Yearbook, Oscar Krisen Buros, ed., pp. 658-9.)

In the current (1972) revision, Forms S and T have been updated in content and there was also an intention "to reduce the 'culture-loading' to which minority groups might object in the Verbal Reasoning test." In addition to test revisions, a computer service (DAT Career Planning Program) provides interpretative comments for students. These summary reports are developed from DAT scores in conjunction with student responses to a special questionnaire regarding their interests, educational plans, and occupational preferences.

The 1974 Manual continues a well-established pattern of excellence. It is very readable and does a commendable job of summarizing an impressive array of validity information. There seems little reason to revise the typical overall evaluation of previous reviewers that the DAT is among the best of its kind.

Concerns: Fairly limited study of the validity of the DAT for occupational criteria has been undertaken; validity evidence from follow-up studies reported in the Manual is rather dated.

The casebook, which was published in 1951, is rather old, although it is an excellent collection of actual case studies involving use of the DAT in counseling. It is still a very useful document even though the cases are over 25 years old.

The Manual does not specifically address issues in the use of the test with members of minority groups.

Evidence is not specifically presented in support of the verbal interpretations that are provided in the DAT Career Planning Program. However, the computer-based verbal reports presented are based on the sound rationale that "aptitude tests are best used in conjunction with other data which throw light on other aspects of an individual's resources and situation." Furthermore, the questionnaire used in the planning program seeks data that have been shown to be relevant.

Summary: The latest revision of the DAT has left basically unchanged the purpose of the tests; possible the most serious dount regarding the DAT comes from the lack of empirical evidence regarding the degree of the differential validity of the subtests in predicting various criteria. The DAT provides a sound basis for making predictions of academic performance as well as measures of multiple abilities, which is far preferable to a single global score. The multiple scores should be useful in exploring academic and vocational possibilities with a student, although differential predictions and profile interpretations are generally not defensible in terms of the existing evidence of differential validity. If they are to be made at all, they must be based primarily on theory and clinical judgment.

Reviewer: Gerald S. Hanna, Journal of Educational Measurement, II (2), Summer, 1974, pp. 145-9. (In The Eighth Mental Measurements Yearbook, Oscar Krisen Buros, ed., pp. 659-62.)

The DAT better measures aptitudes of common educational meaning than aptitudes of relatively pure factorial structure; however, intercorrelations among tests reported in the Manual for former editions indicate that the tests have sufficient independence to support their use as a battery of differential aptitudes.

Strengths: Instructions for hand scoring, preparing answer sheets for machine scoring, and producing the Individual Report Forms are clear.

Tables for converting raw scores directly into percentile ranks and stanines are easily read and understood.

The directions allow for the use of any of several testing schedules.

School districts were selected for the 1972 standardization by a stratified-random sampling design based on school enrollment and estimated community socioeconomic level, a marked improvement over the previous standardization, and attention was given to the proportion of white, black, and other groups of examinees within participating districts. Socioeconomic status was adequately controlled.

The Individual Report Form goes far to impart prudent cautions in score and profile interpretations. The Individual Report Form and the more detailed folder, "Your Aptitudes," contain for each test brief, well written descriptions of what is measured and examples of academic and occupational areas in which high scores are common.

Weakness: Only 23 percentile levels are used.

Solution: An improvement would result if raw scores were converted directly to numerical percentile confidence bands and then graphed rather than first rounded then used as centers of graphic bands. This would (1) reduce grouping errors, (2) render it practical for the Individual Report Form to reflect the differing reliabilities of the nine scores, (3) facilitate recognition of reliability differences among sex and age groups.

Summary: The DAT have long enjoyed a reputation at the secondary school level of making practical the measurement of a variety of educationally meaningful aptitudes, providing safeguards against many potential misinterpretations, and summarizing in unusually well organized form an unparalleled mass of accumulated validity data.

APPENDIX I

FIFTY MAJOR VOCATIONAL EDUCATION PROGRAMS IN THE STATE OF WEST VIRGINIA

EMPLOYMENT PROJECTIONS

Code No.	Title	Total Enrollment FY 1977-78	West Virginia Employment Projections 1974-85 Empl. No.	%	Occupational Outlook Handbook Projections to 1985	Comments
1.0000	Agriculture	5,396				
1.0100	Agricultural Production	4,532	5,102	-9.20	Continued decline in employment	Due to fewer and larger farms
1.0300	Agricultural Mechanics	370	515	+34.82	Increased job opportunities	Technically advanced equipment requires greater maintenance
1.9905	Grounds Maintenance	108	2,790	+11.64		Average Growth
4.0000	Distributive Education	2,574				
4.0100	Advertising Services	149	508	+21.53	Increased job opportunities	Faster than average growth
4.0200	Apparel & Accessories	146	1,862	+3.91	Will fluctuate with the economy	Growth comparable to average for all occupations
4.0600	Food Distribution	201	10,386	+4.34	Jobs plentiful	High turnover
4.0700	Food Service	217	22,652	+7.67	Jobs plentiful	High turnover
4.0800	General Merchandise	829	3,258	+26.08	Slower than average job opportunities	Centralized buying increases
4.2000	Retail Trades, Other	159	4,320	+20.87	Keen competition	

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FIFTY MAJOR VOCATIONAL EDUCATION PROGRAMS IN THE STATE OF WEST VIRGINIA

EMPLOYMENT PROJECTIONS (Continued)

Code No.	Title	Total Enrollment FY 1977-78	West Virginia Employment Projections 1974-85		Occupational Outlook Handbook Projections to 1985	Comments
			Empl. No.	%		
7.0000	Health Occupations Education	1,859				
7.0101	Dental Assisting	129	297	+147.50	Excellent job opportunities	Faster than average growth
7.0302	Practical Vocational Nursing	[illegible]21	4,782	+46.55	Very good outlook	Growth much faster than average
7.0303	Nursing Assistance Aid	[illegible]004	9,031	+27.45	Excellent	Faster than average growth rate
7.0904	Medical Assistant (in Physician's office)	193	1,259	+13.22	Fast growth area	Increased reliance on electronic examination equipment
9.0000	Home Economics	19,125				
9.0101	(Useful Home Ec.) Comp. Homemaking or Home Economics	13,623				
9.0102	Child Development	237				
9.0103	Cloth. & Textiles	754				
9.0105	Family Health	189				
9.0106	Family Relations	821				
9.0107	Food & Nutrition	1,310				
9.0109	Housing & Home Furnishings	170				

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FIFTY MAJOR VOCATIONAL EDUCATION PROGRAMS IN THE STATE OF WEST VIRGINIA

EMPLOYMENT PROJECTIONS (Continued)

Code. No.	Title	Total Enrollment FY 1977-78	West Virginia Employment Projections 1974-85 Empl. No.	%	Occupational Outlook Handbook Projections to 1985	Comments
9.0201	Care & Guidance of Children	327	1,868	+39.40		Expanded growth opportunities indicated
9.0202	Clothing Management, Prod. & Services	291			Continued job opportunities	Automation will increase output per worker
9.0203	Food Management, Prod. & Services	643	8,434	+9.35	Increased demand	Due to population growth and increased dining out.
9.0205	Institutional & Home Management & Supporting Services	261			Some new opportunities in institutional mgmt. Plentiful jobs in home management.	Faster than average growth due to tourism and increased need for home services.
14.0000	Office Occupations	27,527				
14.0100	Accounting and Computing	3,847	13,316* *Bookkeepers; Billing Clerks; Statistical Clerks; Payroll, Time Keeping Clerks	+1.09 to +34.18	Job openings are plentiful through 1985 due to large turnover.	Future employment may be slowed by increased use of more sophisticated types of bookkeeping machines and electronic computers. Projection percentage depends on type of job opening.
14.0299	Business Data Processing, Other	161	107	+17.58	Job opportunities remain strong although advanced technology may change scope of work.	Average growth

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FIFTY MAJOR VOCATIONAL EDUCATION PROGRAMS IN THE STATE OF WEST VIRGINIA

EMPLOYMENT PROJECTIONS (Continued)

Code No.	Title	Total Enrollment FY 1977-78	West Virginia Employment Projections 1974-85 Empl. No.	%	Occupational Outlook Handbook Projections to 1985	Comments
14.0300	Filing, Office Mach. & Gen. Office Cl.	15,770	780	-0.64	Limited job opportunities	Average or slower growth
14.0700	Steno., Sec. & Rel. Occupations	7,506	28,706	+24.91	Increase in sec. opportunities. Decline in need for sten. skills	Faster than average
16.0000	Technical Education	870				
16.0108	Electronic Technology	432	713	+24.65	Good job opportunities in most areas	Faster than average
16.0401	Computer Programmer	267	708	+25.31	Many job opportunities	Faster than average
17.0000	Trade & Industrial Occupations	15,342				
17.0100	Air Conditioning (Cluster)	439	1,433	+33.18	Employment opportunities very favorable	Faster than average
17.0300	Automotive Services	1[illegible]			Jobs plentiful	Average to faster than average growth
17.0301	Body and Fender	794	1,674	-9.46	Continued employment	Average growth
17.0302	Auto Mechanics	1,394	8,065	+12.70	Plentiful job opportunities	Growth comparable to average for all occupations

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FIFTY MAJOR VOCATIONAL EDUCATION PROGRAMS IN THE STATE OF WEST VIRGINIA

EMPLOYMENT PROJECTIONS (Continued)

Code No.	Title	Total Enrollment FY 1977-78	West Virginia Employment Projections 1974-85		Occupational Outlook Handbook Projections to 1985	Comments
			Empl. No.	%		
17.0700	Commercial Art Occupations	159			Jobs available for talented & well-trained. Demand to vary by specialization type	Growth comparable to average for all occupations
	Construction					
17.1000	Construction and Maintenance Trades	1,142	62,236	+25.99	Jobs will increase--sensitive to nation's economy	Employment to rise faster than average for all occupations
17.1099	Construction and Maintenance Trades, Other	1,069				
17.1001	Carpentry	444	13,303	+23.77	Jobs plentiful	Growth comparable to average for all occupations
17.1004	Masonry	431	639	+24.08	Jobs plentiful	Growth faster than average for all occupations
17.1100	Custodial Services	615	17,143	+12.62	Employment good	Growth as fast as average for all occupations
17.1200	Diesel Mechanic	183	11,180	+18.31	Increased job opportunities due to greater use of diesels	Growth faster than average for all occupations
17.1300	Drafting	1,246	2,081	+24.98	Favorable job opportunities--best prospects for holders of Associate Degree	Growth faster than average for all occupations

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FIFTY MAJOR VOCATIONAL EDUCATION PROGRAMS IN THE STATE OF WEST VIRGINIA

EMPLOYMENT PROJECTIONS (Continued)

Code No.	Title	Total Enrollment FY 1977-78	West Virginia Employment Projections 1974-85 Empl. No.	%	Occupational Outlook Handbook Projections to 1985	Comments
	Electrical					
17.1002	Electricity (Residential)	110			Jobs will increase in most areas.	Average growth overall
17.1401	Industrial Electrician	603	10,094	+31.50	Some specialized areas will experience good employment opportunities	
17.1499	Electrical Occupations, (Other)	272				
17.1502	Industrial Electronics	117				
17.1503	Radio/Television	223	1,608	+37.20	Excellent for svc. technicians	Greater than average growth
17.1900	Graphic Arts Occupations	140	1,574	-5.07	Stiff competition in jobs	Slow growth
	Bookbinders		76	+2.70		
	Compositors & Typesetter Engravers, exc. photoengravers		821	-9.38		Some areas will experience increased opportunities and some areas will experience decline in job opportunities
			50	+11.11		
	Photoengraver, Lithographer		84	+3.70		
	Pressmen & Appr.		543	-1.63		
17.2302	Machine Shop	734	3,788	+12.70	Job opportunities good - greater need for maintenance machinists	Growth as fast as average for all occupations
17.2304	Metal Trades (Combined)	398	9,643	+16.28	Auto industry -- small increase Building industry-- increase	Growth about average in overall area
17.2305	Sheet Metal	122	1,122	+20.65	Job opportunities available	Average growth

FIFTY MAJOR VOCATIONAL EDUCATION PROGRAMS IN THE STATE OF WEST VIRGINIA

EMPLOYMENT PROJECTIONS (Continued)

Code No.	Title	Total Enrollment FY 1977-78	West Virginia Employment Projections 1974-85		Occupational Outlook Handbook Projections to 1985	Comments
			Empl. No.	%		
17.2306	Welding and Cutting	1,476	7,946	+27.59	Job opportunities very good	Growth faster than average for all occupations
17.2602	Cosmetology	149	4,519	+11.47	Job opportunities good for both full-time and part-time	Average growth
17.2902	Cook/Chef	201	8,434	+9.35	Job openings good. Most starting jobs in simple food preparation	Growth faster than average - influenced by greater number of working wives
17.3101	Power Mechanics	335	2,833	+1.50	Employment good, particularly in specialized areas	Average to fast growth overall
17.3601	Millwork & Cabinet Making	124	452	-0.88	Jobs available	Average growth
	Mine Operatives					
17.3703	Mine Machinery - Repair	143	26,528	+31.07	Employment opportunities will increase as coal increases in importance as energy source	Fast growth anticipated in selected areas
17.3704	Mine Maintenance (Cluster)	414				

Sources:

"Enrollments in Vocational Education, FY 77-78," Report VE-004-B. Marshall University Computer Center, Huntington, West Virginia: August 21, 1978.

Occupational Outlook Handbook, 1978-79 Edition. U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C: 1978.

"Projections to 1985, Industry and Occupation." West Virginia Department of Employment Security, Research and Statistics Section, Charleston, West Virginia: March, 1977.

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